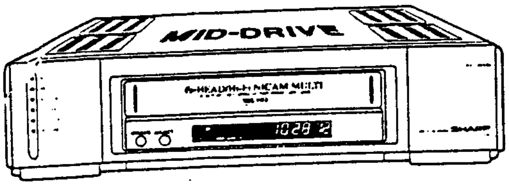
VC-H91/H91ETS
VC-H96/H96ETS
VC-H980/H980ETS

SHARP

SERVICE MANUAL
维修说明书

S72F3VC-H91//

VHS VIDEO CASSETTE RECORDER
VHS 盒式磁带录象机



MODELS VC-H91 VC-H91ETS
型　号 VC-H96 VC-H96ETS
VC-H980 VC-H980ETS

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts indentical to those specified should be used.

为了使用者的安全（有些国家用安全规定加 以要求），修理本装置时必须完全保持其原有配件状态，更换只得使用规定者。

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SHARP CORPORATION

SPECIFICATIONS

Format:	VHS PAL/SECAM/MESECAM/NTSC/NTSC 4.43 standard (VC-H91/VC-H91ETS) VHS PAL/MESECAM/NTSC/NTSC 4.43 standard (Except VC-H91/VC-H91ETS)
Video recording system:	Two rotary heads, helical scan system
Video signal:	PAL/SECAM/NTSC colour and monochrome (CCIR system: B/G, I, D/K, M)
Recording/playback time:	240 min. max. with SHARP E-240 tape (PAL/SECAM/MESECAM SP mode) 480 min. max. with SHARP E-240 tape (PAL/SECAM/MESECAM LP mode) 160 min. max. with SHARP T-160 tape (NTSC SP mode) 480 min. max. with SHARP T-160 tape (NTSC EP mode)
Tape width:	12.7 mm
Tape speed:	23.39 mm/sec. (PAL/SECAM/MESECAM SP mode) 11.70 mm/sec. (PAL/SECAM/MESECAM LP mode) 33.35 mm/sec. (NTSC SP mode) 16.68 mm/sec. (NTSC LP mode) 11.12 mm/sec. (NTSC EP mode)
Antenna:	75 ohm unbalanced
Receiving channel:	VHF Channel E2-E12 UHF Channel E21-E69
RF converter output signal:	VHF Channel E30-E39 (Adjustable). Preset to E36 channel (VC-H91/VC-H96/VC-H980) VHF Channel E30-E39 (Adjustable). Preset to E39 channel (VC-H91ETS/VC-H96ETS/VC-H980ETS)
Power requirement:	AC 110~240V, 50/60 Hz
Power consumption:	Approx. 22W at AC 220V/50Hz (Except VC-H980/VC-H980ETS) Approx. 24W at AC 220V/50Hz (VC-H980/VC-H980ETS)
Operating temperature:	5°C to 40°C
Storage temperature:	– 20°C to 60°C
Weight:	Approx. 4.8kg (VC-H91/VC-H91ETS) Approx. 4.9kg (VC-H96/VC-H96ETS) Approx. 5.1kg (VC-H980/VC-H980ETS)
Dimensions:	380 mm (W) × 320.7 mm (D) × 89.8 mm (H)
VIDEO	
Input:	0.5-2.0 Vp-p, 75 ohm
Output:	1.0 Vp-p, 75 ohm
AUDIO	0 dBs = 0.775 Vrms
Input:	Line: – 8 dBs, more than 47k ohm (With – 4 dB/ – 8 dB ATT. SW)
Output:	Line: – 8 dBs, less than 1k ohm
Accessories included:	75 ohm coaxial cable Operation manual Infrared remote control Battery AC cord Audio cable AC cord round pin attachment plug (VC-H91ETS/VC-H96ETS/VC-H980ETS) AC cord flat blade attachment plug (VC-H91/VC-H96/VC-H980) Game accessories (Except VC-H91/VC-H91ETS/VC-H980ETS) AC plug adapter (VC-H91/VC-H96/VC-H980) Microphohe (VC-H980/VC-H980ETS)

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

Note: The antenna must correspond to the new standard DIN 45325 (IEC 169 - 2) for combined UHF/VHF antenna with 75 ohm connector.

规格

形式：VHS（家庭用录象机）PAL/SECAM/MESECAM/NTSC/NTSC 4.43标准型
（型号：VC-H91/VC-H91ETS）
VHS（家庭用录象机）PAL/MESECAM/NTSC/NTSC 4.43标准型
（型号：VC-H91/VC-H91ETS除外）
视频记录方式：双旋转磁头螺旋形扫描形式
视频信号：PAL/SECAM/NTSC(彩色和单色度信号)
(CCIR方式：蓝色背景，I，D/K、M信号)
记录再现时间：夏普E-240录象磁带最大240分(PAL/SECAM/MESECAM:标准转速SP方式)
夏普E-240录象磁带最大480分(PAL/SECAM/MESECAM:缓慢转速LP方式)
夏普T-160录象磁带最大160分(NTSC:标准转速SP方式)
夏普T-160录象磁带最大480分(NTSC:超慢转速EP方式)
录象磁带带宽：12.7毫米
走带速度：23.39毫米/秒(PAL/SECAM/MESECAM：SP方式)
11.70毫米/秒(PAL/SECAM/MESECAM：LP方式)
33.35毫米/秒(NTSC：SP方式)
16.68毫米/秒(NTSC：LP方式)
11.12毫米/秒(NTSC：EP方式)
天线：75欧姆，非平衡式
接收频道：VHF（甚高频）频道E2～E12
UHF（超高频）频道E21～E69
射频变换器输出信号：VHF（甚高频）频道E30～E39（可调节），出厂预设预道为E36
(型号: VC-H91/VC-H96/VC-H980)
VHF（甚高频）频道E30～E39（可调节），出厂预设预道为E39
(型号: VC-H91ETS/VC-H96ETS/VC-H980ETS)
电源：交流110～240伏，50/60赫兹
消耗功率：于交流220伏，50赫兹时，约22瓦(型号：VC-H980/VC-H980ETS除外)
于交流220伏，50赫兹时，约24瓦(型号：VC-H980/VC-H980ETS)
工作温度：5℃～40℃
存放温度：-20℃～60℃
重量：约4.8公斤(型号：VC-H91/VC-H91ETS)
约4.9公斤(型号：VC-H96/VC-H96ETS)
约5.1公斤(型号：VC-H980/VC-H980ETS)
尺寸：380(宽)×320.7(深)×89.8(高)毫米
视频信号：
输入：0.5～2.0Vp-p,75欧姆
1.0Vp-p,75欧姆(型号：VC-H96/VC-H96ETS)
输出：1.0Vp-p,75欧姆
音频信号：0分贝＝0.775伏均方根值
输入：线路：-8分贝、47千欧姆以上(附-4分贝/-8分贝ATT开关)
输出：线路：-8分贝、1千欧姆以下
附属品：天线用75欧姆同轴电缆
使用说明书
红外线遥控器
电池
交流电源引线
音频装置用电缆
交流电源引线圆销连接插头(型号：VC-H91ETS/VC-H96ETS/VC-H980ETS)
交流电源引线扁平销连接插头（型号：VC-H91/VC-H96/VC-H980）
电子游戏附件（型号：VC-H91/VC-H91ETS/VC-H980ETS除外）
电源插头转换器(型号：仅限于VC-H91/VC-H96/VC-H980)
麦克风(型号：VC-H980/VC-H980ETS)

由于产品不断更新换代，不经预告而改变设计及其规格的情况。

注：天线应使用符合DIN45325（IEC169-2）新标准的带有75欧姆连接器的UHF/VHF型天线。

DISASSEMBLY AND REASSEMBLY

UPPER CABINET: Remove 4 screws ①. Remove the upper cabinet by sliding it backward.

BOTTOM PLATE: Remove 4 screws ②. Remove the bottom plate by sliding it backward.

FRONT PANEL : Remove 5 clips ③ from the upper and lower parts of the front panel respectively, and remove the front panel.

MAIN PWB : Remove 1 screw ④ and remove the holder. (Except VC-H980/H980ETS)
Remove 2 screws ④' and remove the holder. (VC-H980/H980ETS)
Remove 2 screws ⑤ and the clip from main PWB holders ⑥.
Holding the top of the main PWB, pull out the main PWB.

ANTENNA TERMINAL BOARD : Remove 2 screws ⑦.

TUNER/IF PWB : Remove 2 screws ⑧.

POWER UNIT : Remove 1 screw ⑨ from the power unit holder.
Remove 2 screws ⑩.

HEAD AMP UNIT : Remove 2 screws ⑪.

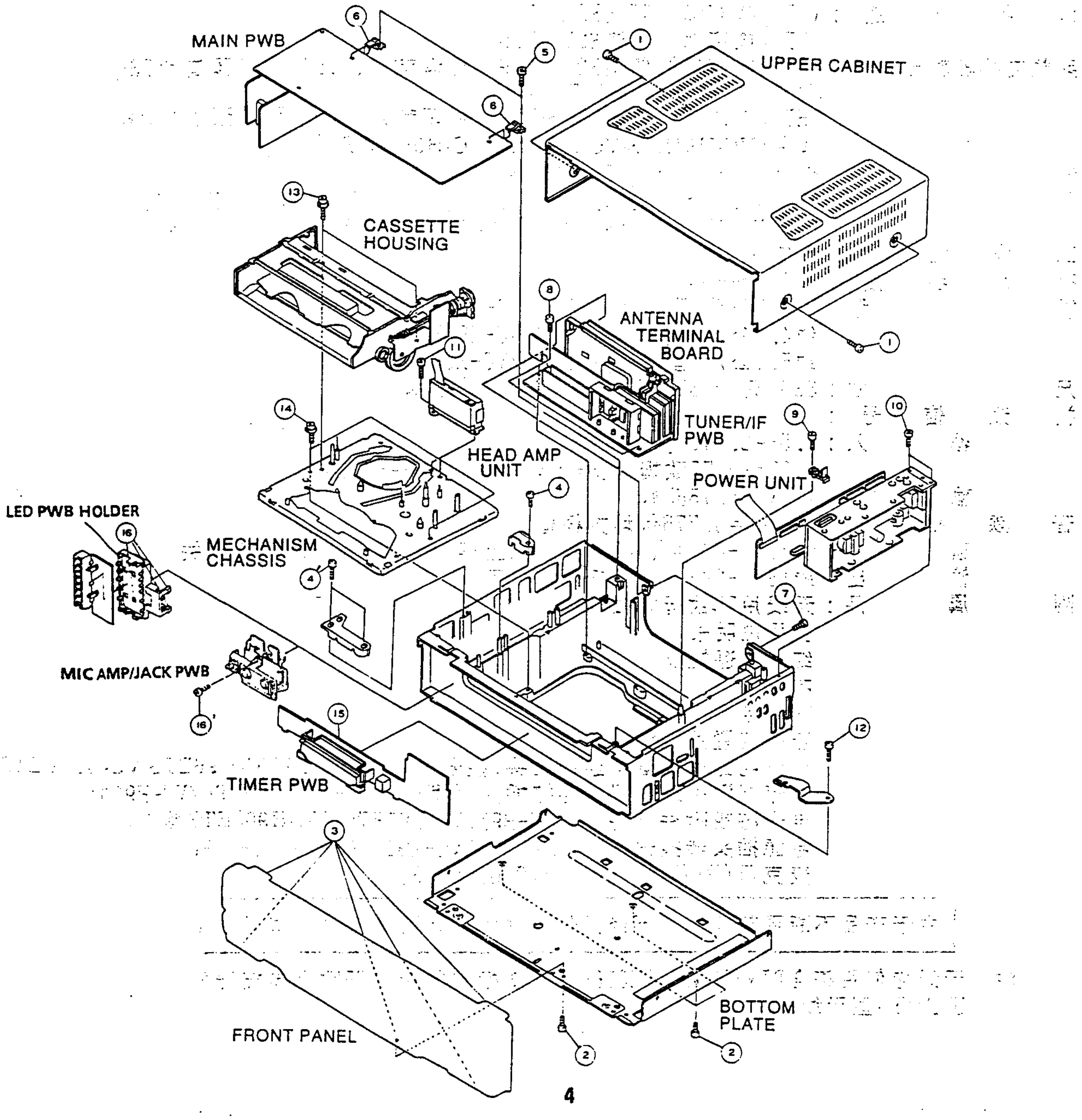
CASSETTE HOUSING : Remove 1 screw ⑫ and 2 screws ⑬.

MECHANISM CHASSIS : Remove 3 screws ⑭.

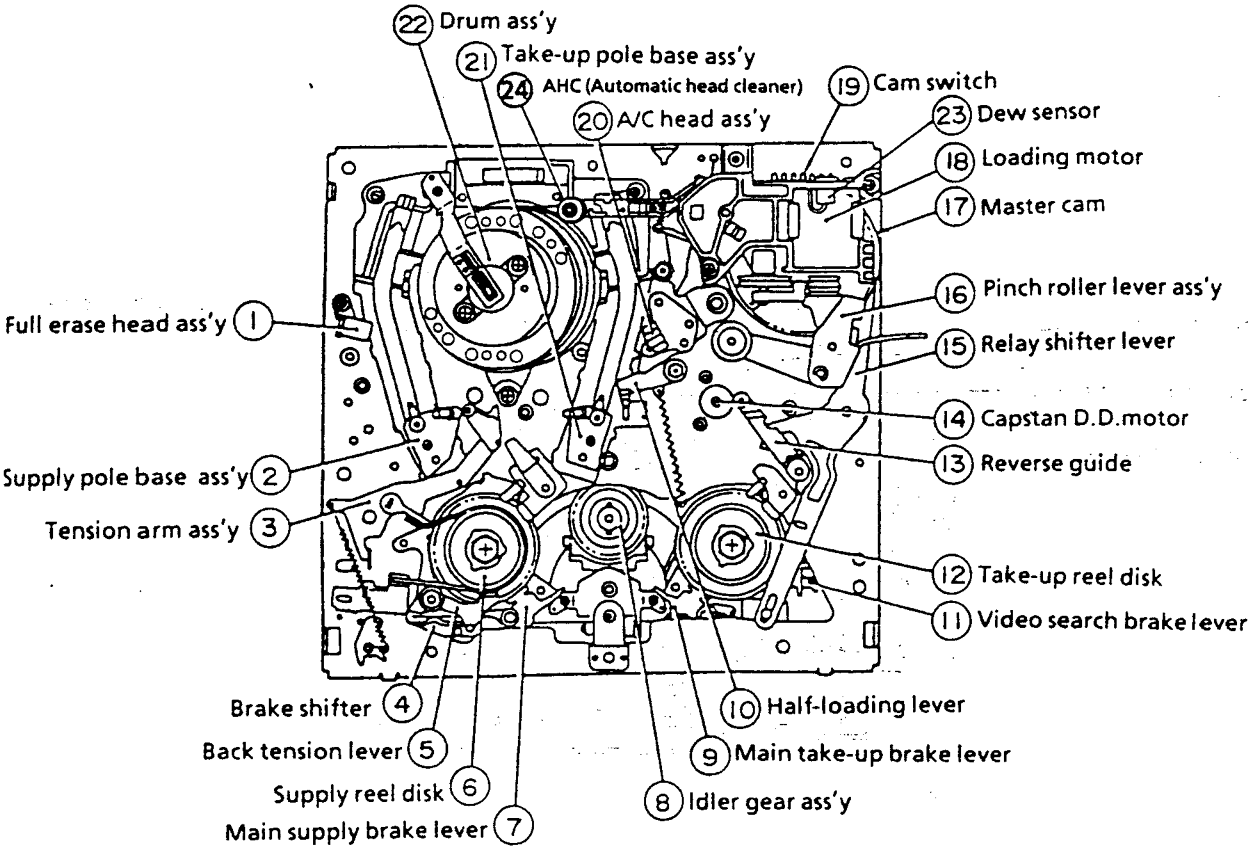
TIMER PWB : Remove 2 clips ⑮.

LED PWB HOLDER : Remove 4 clips ⑯.
(Except VC-H980/H980ETS)

MIC AMP/JACK PWB : Remove 1 screw ⑯'.
(VC-H980/H980ETS)

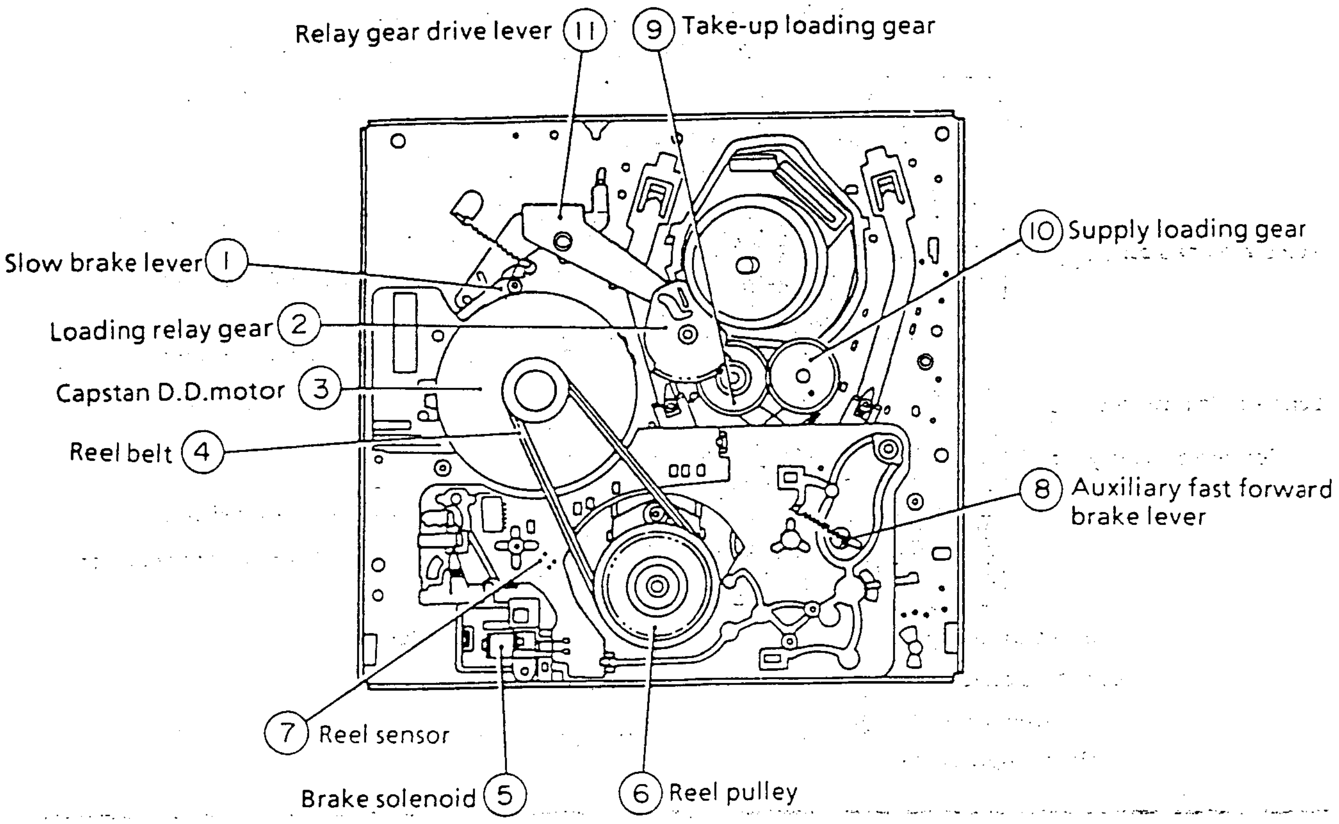

MAIN PWB
⑥
⑤
⑥
①
UPPER CABINET
⑬
CASSETTE HOUSING
⑧
ANTENNA TERMINAL BOARD
①
⑪
⑭
TUNER/IF PWB
⑨
⑩
HEAD AMP UNIT
POWER UNIT
④
LED PWB HOLDER
⑯
MECHANISM CHASSIS
④'
⑦
MIC AMP/JACK PWB
⑯'
⑮
⑫
TIMER PWB
③
FRONT PANEL
BOTTOM PLATE
②
②

FUNCTION OF MAJOR MECHANICAL PARTS (TOP VIEW)


㉒ Drum ass'y
㉑ Take-up pole base ass'y
㉔ AHC (Automatic head cleaner)
⑲ Cam switch
⑳ A/C head ass'y
㉓ Dew sensor
⑱ Loading motor
⑰ Master cam
① Full erase head ass'y
⑯ Pinch roller lever ass'y
⑮ Relay shifter lever
⑭ Capstan D.D.motor
② Supply pole base ass'y
⑬ Reverse guide
③ Tension arm ass'y
⑫ Take-up reel disk
⑪ Video search brake lever
④ Brake shifter
⑩ Half-loading lever
⑤ Back tension lever
⑨ Main take-up brake lever
⑥ Supply reel disk
⑧ Idler gear ass'y
⑦ Main supply brake lever

No.	Function
1.	Full erase head ass'y Erase the whole records on the tape in the recording mode.
3.	Tension arm ass'y Detects the tension of tape while running, and brakes the supply reel disk via the tension band.
4.	Brake shifter Set the position of brake or the like in accordance with the modes such as stop and playback.
5.	Back tension lever Brakes the supply reel disk to a certain degree to prevent tape slackening during "half-loading", "loading" and "shifting from playback to video search rewind".
7.	Main supply brake lever Brakes the supply reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.
9.	Main take-up brake lever Brakes the take-up reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.
10.	Half-loading lever Bring the tape in contact with the A/C head, putting it in half-loading state in the fast forward or rewind mode.
11.	Video search brake lever It is in contact with the take-up reel disk normally, and brakes it to a certain degree. It applies larger brake in the video search rewind mode.
13.	Reverse guide Pulls out the tape in the video search rewind mode, and controls the tape drive train height with the upper and lower guides.
15.	Relay shifter lever Transmits the operation of the master cam to the brake shifter, and operates the reverse guide.
16.	Pinch roller lever ass'y Press-fits the tape to the capstan during tape running. The right protrusion switches the clutch of the cassette housing control assembly in "tape eject", and makes the mechanism eject the tape.
17.	Master cam Turns clockwise during loading, and counterclockwise during unloading, and moves the shifter or the like in accordance with each mode.
18.	Loading motor A motive power which drives the mechanism. It transmits the power to the master cam and cassette housing control assembly via the belt.
19.	Cam switch Rotates synchronously with the master cam, and detects the position of each mode by means of the internal switch.
23.	Dew sensor An element which detects condensation inside the unit. This element is activated, when it senses condensation, to interrupt the mechanism.

FUNCTION OF MAJOR MECHANICAL PARTS (BOTTOM VIEW)


Relay gear drive lever ⑪
⑨ Take-up loading gear
Slow brake lever ①
Loading relay gear ②
Capstan D.D.motor ③
Reel belt ④
⑩ Supply loading gear
⑧ Auxiliary fast forward brake lever
⑦ Reel sensor
Brake solenoid ⑤
⑥ Reel pulley

No.	Function	No.	Function
1.	Slow brake lever Gets in contact with the capstan D.D. motor linking to the master cam in the slow still mode, and brakes it to a certain degree.	7.	Reel sensor An element which sheds the light onto the reflection plate affixed to the bottom side of the reel disk, and detects the rotation of the reel disk through receiving the reflected light.
3.	Capstan D.D. motor A motive power which runs the tape. It transmits the power via the reel belt.	8.	Auxiliary fast forward brake lever Brakes the supply reel disk to a certain degree in the fast forward and rewind modes.
4.	Reel belt Transmits the power to run the tape to the reel pulley.	9.	Take-up loading gear Shifts the take-up pole base and guide roller via the loading relay gear, and applies the tape around the drum assembly, as well as transmits the power to the supply loading gear.
5.	Brake solenoid Adsorbs and holds the brake shifter in the fast forward and rewind modes, and releases it in the stop mode.	10.	Supply loading gear Shifts the supply pole base and guide roller via the take-up loading gear, and applies the tape around the drum assembly.
6.	Reel pulley Transmits the power of the capstan D.D. motor to the reel disk via the reel idler.	11.	Relay gear drive lever Transmits the movement of the master cam to the take-up loading gear via the loading relay gear.

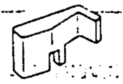
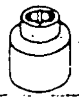
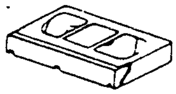
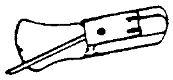
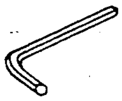
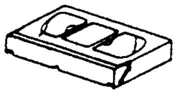
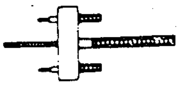
ADJUSTMENT, REPLACEMENT AND ASSEMBLY OF MECHANICAL UNITS

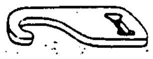
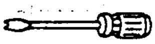
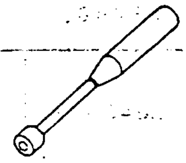
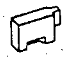
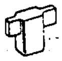
Here we will describe a relatively simple service work in the field, not referring to the more complicated repairs which would require the use of special equipment and tools (drum assembly replacement, for example).

We are sure that the easy-to-handle tools listed below would be more than handy for periodical maintenance to keep the machine in its original working condition.

TOOLS NECESSARY FOR ADJUSTING THE MECHANICAL UNITS

The following tools are required for proper service and satisfactory repair.

No.	Jig Item	Part No.	Code	Configuration	Remarks
1	Reel Disk Height Adjusting Jig	JiGRH0002	BR		These Jigs are used for checking and adjusting the reel disk height
2	Master Plane Jig	JiGMP0001	BY		
3	A/C Head Tilt Adjusting Jig	JiGACH-F18	BU		This Jig is used for setting the A/C head tilt.
4	Torque Gauge (90g)	JiGTG0090	CM		These Jigs are used for checking and adjusting the torque of take-up and supply reel disks.
	Torque Gauge (1.2 kg)	JiGTG1200	CN		
5	Gauge Head	JiGTH0006	AW		
6	Cassette Torque Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up for measuring tape back tension.
7	Tension Gauge (300g)	JiGSG0300	BF		There are two gauges used for the tension measurements, 300 g and 2.0 kg.
	Tension Gauge (2.0kg)	JiGSG2000	BS		
8	Hex Wrench (0.9mm)	JiGHW0009	AE		These Jigs are used for loosening or tightening special hexagon type screws.
	Hex Wrench (1.2mm)	JiGHW0012	AE		
	Hex Wrench (1.5mm)	JiGHW0015	AE		
9	Alignment Tape (PAL)	VROCPSV	CK		These tapes are especially used for electrical fine adjustment.
	Hi-Fi Alignment Tape (PAL)	VROCBFFS	CB		
	Alignment Tape (NTSC)	VROATSV	CK		
	Alignment Tape (NTSC)	VRONBZZS			
	Alignment Tape (NTSC)	VR9EBZCS	BP		
10	Drum Replacing Jig	JiGDT-0001	BG		This is used for replacement of the VCR's upper drum.

No.	Jig Item	Part No.	Code	Configuration	Remarks
11	Tension Gauge Adapter	JiGADP003	BK		This Jig is used with the tension gauge. Rotary transformer clearance adjusting Jig.
12	Special Bladed Screwdriver	JiGDRiVERH-4	AP		This screwdriver is used for adjusting the guide roller height.
13	Tension Band and Plate Adjusting Jig	JiGDRiVER-6	BM		This Jig is used for adjusting the tension band and tension plate.
14	Torque Driver	JiGTD1200	CB		This is used to screw down resin-made parts: the specified torque is 5 kg.
15	Box Driver	JiGDRiVER110-7	AS		This Jig is used for height adjustment of the A/C head and X-position.
		JiGDRiVER110-4	AV		This Jig is used for height adjustment of the retaining guide.
16	Retaining Guide Height Adjusting Jig	JiGGH-F18	BU		This Jig is used for height adjustment of the retaining guide.
17	Reverse Guide Height Adjusting Jig	JiGRVGH-F18	BU		This Jig is used for height adjustment of the reverse guide.

MECHANICAL PARTS REQUIRING PERIODICAL INSPECTION

Use the following table as a guide to maintain the mechanical parts in good operating condition.

Parts / Maintained	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	Possible symptom encountered	Remarks
Guide roller ass'y	□	□	□	○	Lateral noises Head occasionally blocked	Abnormal rotation or significant vibration requires replacement.
Supply impedance roller	□	□	□	○		
Supply impedance roller (inner hole and shaft)		□		□		Clean with pure high quality isopropyl alcohol.
Supply impedance roller flange	□	□	□	□		Clean tape contact part with the specified cleaning liquid.
Retaining guide	□	□	□	□		
Slant pole	□	□	□	○		
Video head (Upper drum ass'y)	□	○ □	□	○ □	Poor S/N ratio, no colour	Clean tape contact area with the specified cleaning liquid.
Full-erase head	□	□	□	○	Poor colour, beating	
A/C head	□	□	□	○	Sound too small or distorted	
Lower drum ass'y	□	□	□	○	Poor flatness of the envelope with alignment tape	
Capstan D.D. Motor	□	□	□	○	No tape running, uneven colour	
Pinch roller	□	□	□	○	No tape running, tape slack	Clean rubber and rubber contact area with the specified cleaning liquid.
Reel belt		□		○	No tape running, tape slack, no fast forward/rewind motion	
Loading belt		□		○	Cassette not loaded or unloaded	
Cassette loading belt		□		○		
Tension band ass'y				○	Lateral image swing	
Loading Motor				○	Cassette not loaded or unloaded	
AHC (Automatic Head Cleaner)		○		○		Replace the roller of the cleaner when it wears down. Just change the AHC roller assembly for new one.
Reel block*					See the chart below.	
*** See the table below for servicing the reel block parts.**						
Supply/Take-up reel disks		□ △		△ ○	No tape running, tape slack	Clean with pure high quality isopropyl alcohol.
Video search brake lever				○		
Idler gear ass'y				○	No tape running	
Reel Pulley		□ △		□ ○		
Main supply/take-up brake levers				○	Tape slack	

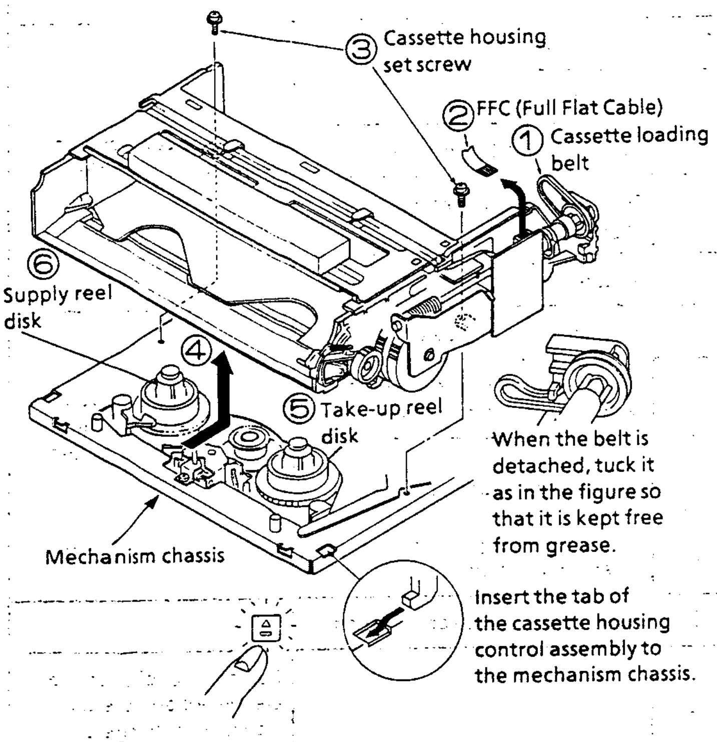
NOTE:
○: Part replacement.
□: Cleaning (For cleaning, use a lint-free cloth dampened with pure isopropyl alcohol).
△: Oil refilling (The indicated point should be lubricated with high quality spindle oil every 1000 hrs).

If the reading is out of the specified value, clean or replace the part.

REMOVAL AND REASSEMBLY OF CASSETTE HOUSING CONTROL ASSEMBLY

- **Removal**

1. Set the cassette ejected condition in the cassette eject mode.
2. Unplug the recorder from the main source.
3. Follow the procedures below in the specified order.
   a) Remove the cassette loading belt ①.
   b) Disconnect the FFC (Full Flat Cable) ②.
   c) Remove the cassette housing installation screws ③.
   d) Slide and pull out the cassette housing control assembly ④ upward.


③ Cassette housing set screw
② FFC (Full Flat Cable)
① Cassette loading belt
⑥ Supply reel disk
④
⑤ Take-up reel disk
Mechanism chassis

When the belt is detached, tuck it as in the figure so that it is kept free from grease.

Insert the tab of the cassette housing control assembly to the mechanism chassis.

Figure 1-1.

- **Reassembly**

1. Before installation of the cassette housing control assembly, place the unit in the stop mode with the power on, then unplug the power cord. (The main body is placed in the eject mode.)
2. Follow the procedures for removal in the reverse order.

Notes:

1. Be sure to unplug the power cord in removal and reassembly.
2. Keep the cassette loading belt free from grease. In case of its adhesion, clean the belt.
3. In using a magnet screw driver, be sure to keep it away from the A/C head, FE (Full Erase) head, or the drum.
4. In removal and reassembly, take care not to hit the cassette housing control assembly or tools against the guide pin, drum, or the like thereabout.
5. Place the unit in the eject mode in removal or reassembly of the cassette housing control assembly.
6. Load the cassette once onto the cassette housing control assembly after reassembly. (If the cassette housing control assembly normally operates after this, the phases of mechanism and the cassette controller are accurately adjusted after ejection.)

MECHANICAL OPERATION CHECK WITHOUT CASSETTE

When power is on, the general operations of the mechanism can be checked without a cassette. Note the following points.

1. Check video search rewind and rewind, rotating the take-up reel disk ⑤ by hand (in either normal or reverse direction). If it is not rotated, the reel sensor works to shift the mechanism to the eject mode.
2. When the stop button is pressed, the mechanism does not stop at a normal stop position. It shifts to the eject mode and stops.
3. When the stop button is pressed in the playback, video search rewind, and video search forward modes, the supply reel disk ⑥ keeps on rotating for several seconds for elimination of tape slack in the course of shifting to the eject mode. In such a case, rotate the take-up reel disk ⑤ somewhat by hand, and the supply reel disk ⑥ stops, which can reduce the working time.

REPLACEMENT OF WORM WHEEL ASSEMBLY

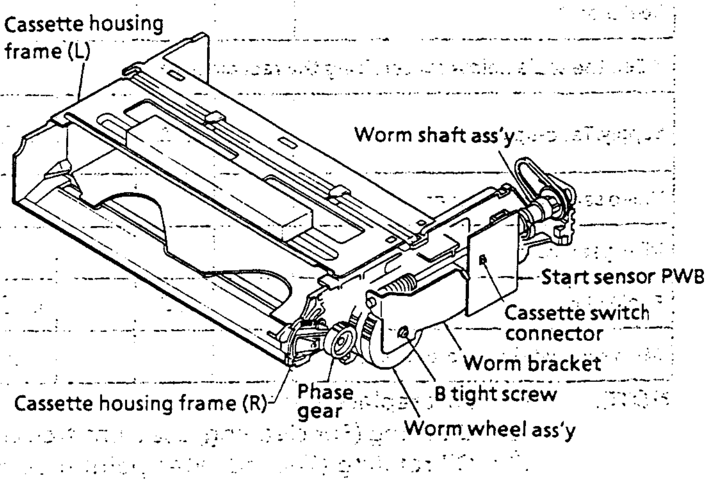

Cassette housing frame (L)
Worm shaft ass'y
Start sensor PWB
Cassette switch connector
Worm bracket
B tight screw
Worm wheel ass'y
Phase gear
Cassette housing frame (R)

Figure 1-2.

- **Removal**

1. Unsolder the cassette switch connectors (No. 16, 17) from the start sensor PWB.

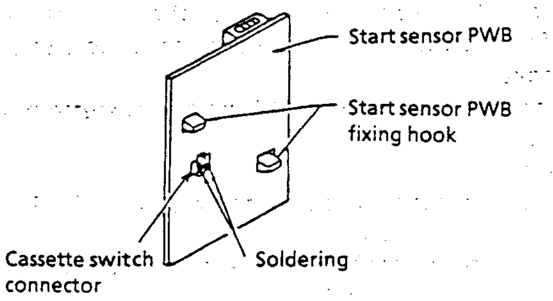

Start sensor PWB
Start sensor PWB fixing hook
Cassette switch connector
Soldering

Figure 1-3.

2. Lift the start sensor PWB pressing the two start sensor PWB fixing hooks inward.

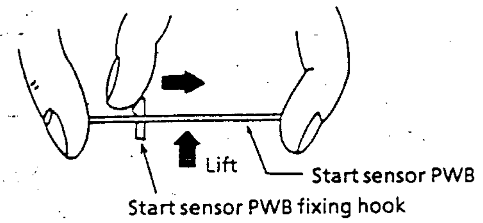

Lift
Start sensor PWB
Start sensor PWB fixing hook

Figure 1-4.

3. Unscrew one B tight screw to detach the worm bracket.
   Note:
   The worm shaft bearing can easily come out of position. So be careful not to lose it.

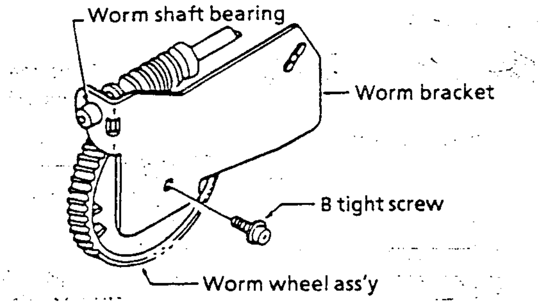

Worm shaft bearing
Worm bracket
B tight screw
Worm wheel ass'y

Figure 1-5.

4. Remove the worm shaft assembly, pulley, and cassette loading belt all from the cassette housing frame (R).

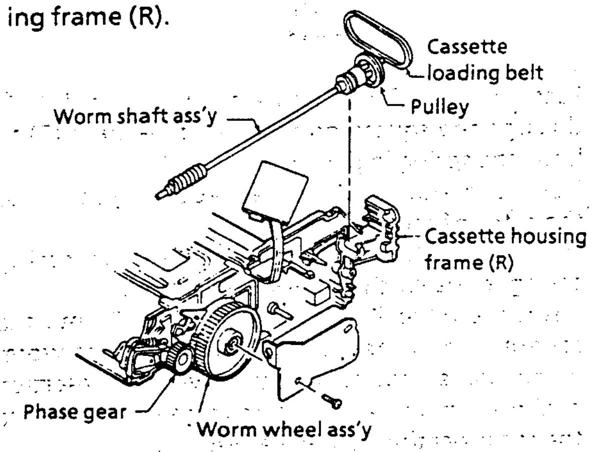

Cassette loading belt
Pulley
Worm shaft ass'y
Cassette housing frame (R)
Phase gear
Worm wheel ass'y

Figure 1-6.

5. Place the slider pin just above the worm wheel assembly (Figure 1-7). (The retainer of the slider is locked at two positions. So unlock it as in the Figure 1-8.)
6. Pull out the worm wheel assembly toward you pressing the switch lever upward. (Figure 1-7)

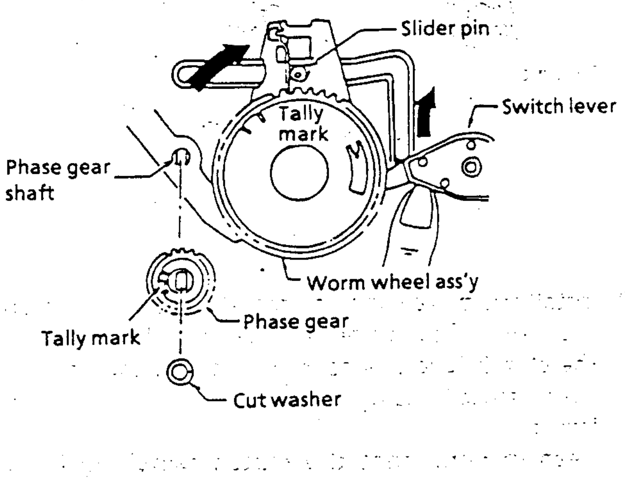

Slider pin
Switch lever
Tally mark
Phase gear shaft
Worm wheel ass'y
Phase gear
Tally mark
Cut washer

Figure 1-7.

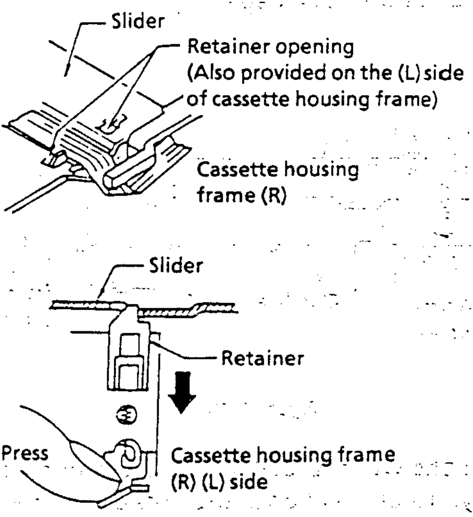
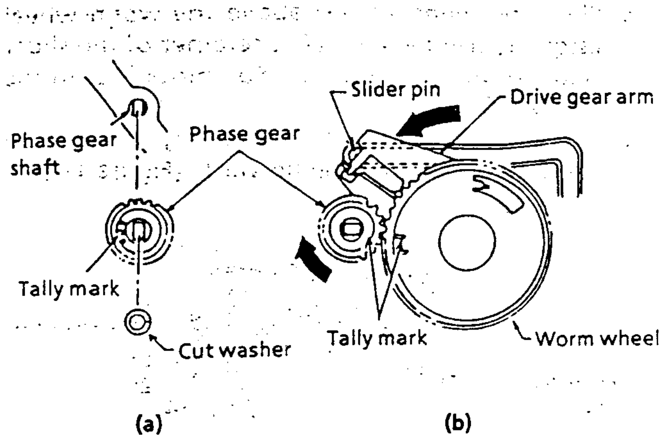

Slider
Retainer opening (Also provided on the (L) side of cassette housing frame)
Cassette housing frame (R)
Slider
Retainer
Press
Cassette housing frame (R) (L) side

Figure 1-8.

- **Reassembly**

1. Turn the phase gear clockwise until the slider comes to a halt in the cassette insertion direction.. (See the Figure 1-9.)
2. Insert the set up worm wheel gear assembly into the cassette housing frame (R), matching the mark on the phase gear with the mark on the worm wheel gear. Detach the cut washer on the phase gear assembly and the phase gear for easier installation of worm wheel assembly.
   Note:
   Make sure that the slider pin is in the groove of the drive gear arm.


Phase gear shaft
Phase gear
Slider pin
Drive gear arm
Tally mark
Cut washer
Tally mark
Worm wheel

(a) (b)

Figure 1-9.

3. Install the pulley and the cassette loading belt on the worm shaft assembly. Couple the clutch to the clutch lever. And mount them together in the cassette housing frame (R).
   Note:
   Keep in mind that the clutch switching lever should be in the correct position. The mechanism might malfunction if the lever is slightly out of position. (See page 13.)

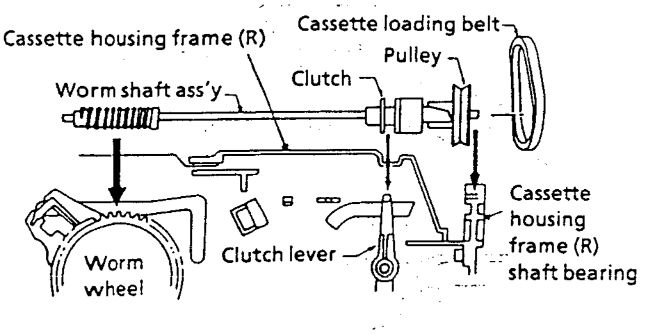

Cassette housing frame (R)
Cassette loading belt
Pulley
Clutch
Worm shaft ass'y
Cassette housing frame (R) shaft bearing
Clutch lever
Worm wheel

Figure 1-10.

4. Attach the worm bracket to the worm shaft assembly. Place them onto the boss on the cassette housing frame (R).
   Note:
   Insert ① before screwing into ② and ③.

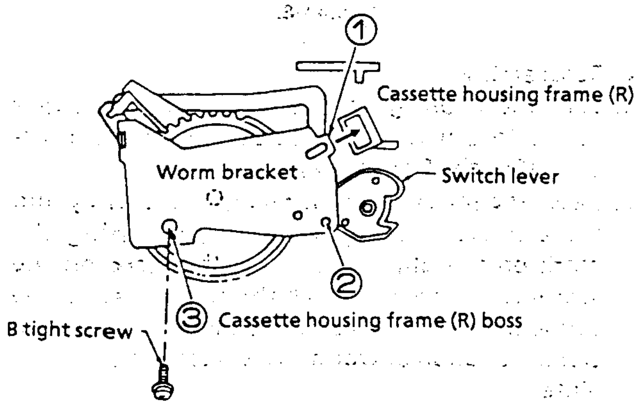
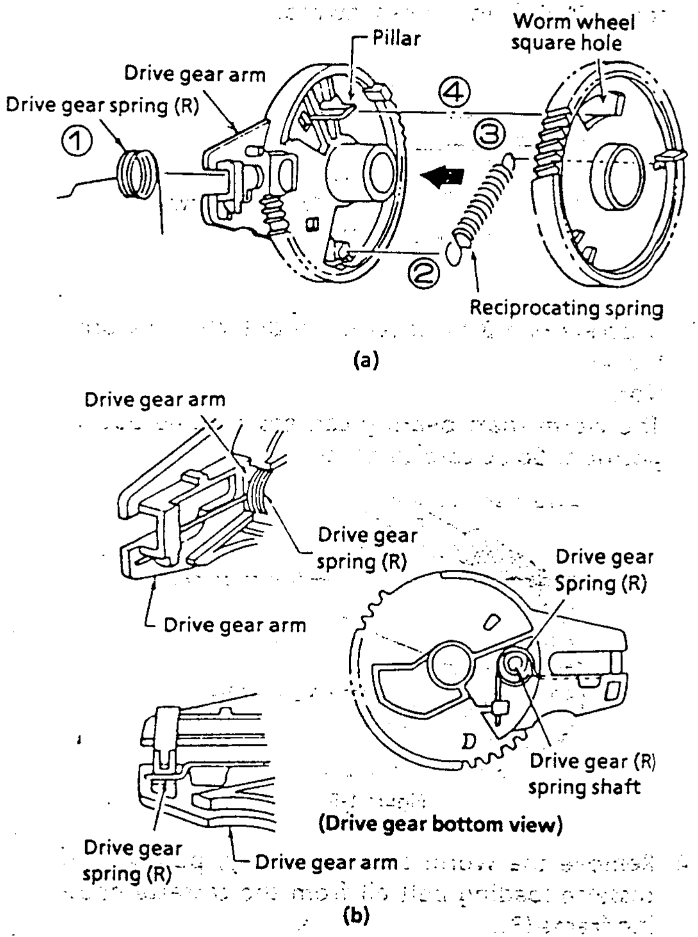

①
Cassette housing frame (R)
Worm bracket
Switch lever
②
B tight screw
③ Cassette housing frame (R) boss

Figure 1-11.

5. Tighten one B tight screw.
   Note:
   Do not overtighten the B tight screw (no more than 5.0 ± 0.5 kg.cm), because the lower threads of the screw hole at the resin-made boss can be broken.
6. Place the start sensor PWB on the cassette housing frame (R).
   Note:
   Check that the switch connectors (No. 16, 17) are in the cassette switch mounting hole.
7. Finally resolder the cassette switch connector to the start sensor PWB.

REASSEMBLY OF DRIVE GEAR


Worm wheel square hole
Pillar
Drive gear arm
Drive gear spring (R)
①
④
③
②
Reciprocating spring
(a)
Drive gear arm
Drive gear spring (R)
Drive gear Spring (R)
Drive gear arm
D
Drive gear (R) spring shaft
(Drive gear bottom view)
Drive gear spring (R)
Drive gear arm

(b)

Figure 1-12.

1. Pass the tip of the drive gear spring (R) ① through the square hole of the drive gear (R) to hook the spring in position.
2. Hook one end ② of the reciprocating spring to the catch of the drive gear (R).
3. Hook the other end ③ of the reciprocating spring to the catch of the worm wheel.
4. Insert the pillar ④ of the drive gear (R) into the square hole of the worm wheel. Turn the worm wheel somewhat counterclockwise for insertion of the worm wheel to the drive gear (R), because the reciprocating spring is at work.

REPLACEMENT OF CASSETTE LOADING BELT

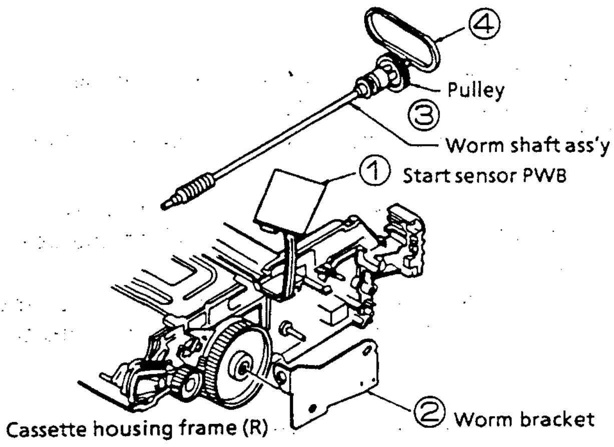

④
Pulley
③
Worm shaft ass'y
① Start sensor PWB
Cassette housing frame (R)
② Worm bracket

Figure 1-13.

1. Remove the start sensor PWB ① and worm bracket ② from the cassette housing frame (R).
2. Remove the worm shaft assembly ③.
3. Replace the cassette loading belt ④ with a new one.

Notes:

1. Do not overtighten the B tight screw which holds the worm bracket in position. The specified torque is 5.0 ± 0.5 kg.cm.
2. Make sure that the cassette loading belt is free from grease. If stained with grease, clean the belt with the cleaning liquid.
3. Perform checking of the clutch switch lever for proper action.

CHECKING THE CLUTCH SWITCH LEVER

- **Checking**

  Place the mechanism in the cassette eject mode when removing and attaching the cassette housing from and to the mechanism chassis.

  Make sure enough that each part in the cassette housing such as the clutch switch lever is in position. If not, it causes malfunction.

  Note:

  Figure 1-14 shows the position of each part in the cassette eject mode.

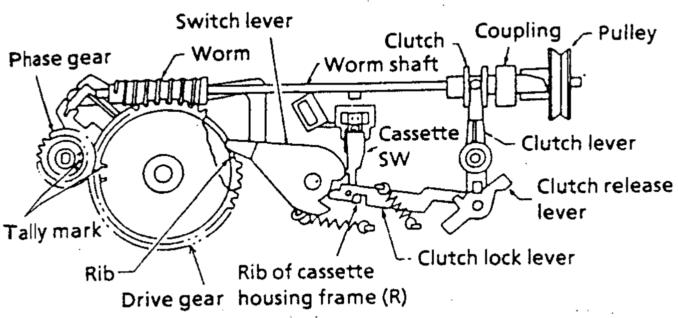
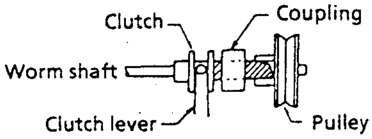

Switch lever
Phase gear
Worm
Clutch
Worm shaft
Coupling
Pulley
Cassette SW
Clutch lever
Clutch release lever
Tally mark
Clutch lock lever
Rib
Rib of cassette housing frame (R)
Drive gear

Figure 1-14.

1. First make sure that the tip of the switch lever is held at the rib of the drive gear (R).
2. Check that the rib of the cassette housing frame (R) and the concavity of the clutch lock lever are engaged.
3. Finally be sure that the relationship between the clutch lever and the clutch, as well as between the clutch and the pulley, are correct as in the Figure 1-15.


Clutch
Coupling
Worm shaft
Clutch lever
Pulley

Check that the clutch is engaged with the pulley through the coupling.

Figure 1-15.

- **Resetting**

  Take the following steps to reset the clutch if it is unlocked or if the switch lever and the clutch lock lever are unlocked.

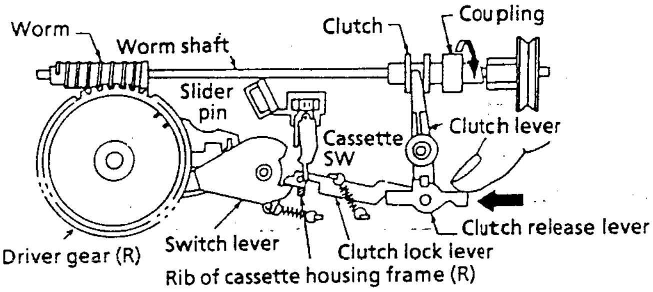

Worm
Worm shaft
Clutch
Coupling
Slider pin
Cassette SW
Clutch lever
Clutch release lever
Driver gear (R)
Switch lever
Clutch lock lever
Rib of cassette housing frame (R)

Figure 1-16.

1. Shift the slider by turning the coupling in the arrow direction (clockwise) until the slider pin is at the bottom of the slider groove as shown in the Figure 1-16. (The loading mode)

   Note:

   Note that the slider is equipped with a lock mechanism. Unlock the locks on cassette housing frames (L) and (R) side before shifting the slider.
2. When the position is set as shown in the Figure 1-16, push the clutch release lever in the direction of the arrow by hand until the clutch lock lever becomes tightly locked by the rib of the cassette housing frame (R).
3. Then turn the coupling counterclockwise until the slider reaches the cassette insertion opening and the reciprocating spring is activated.

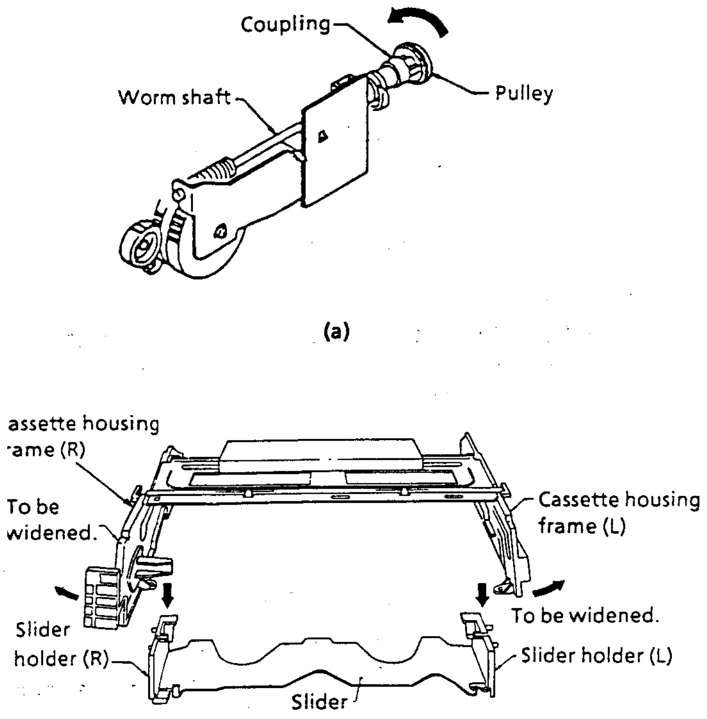
   Note:

   There is no need to unlock the slider when shifting the slider to the cassette insertion opening. Just keep shifting the slider.

REPLACEMENT OF LOCK RELEASE LEVER

- **Removal**

1. Place the slider in the cassette down position. (Turn the coupling on the worm shaft clockwise until the slider is in the cassette down position.)
   Note:
   Before shifting, unlock the slider.
2. Slightly widen the cassette housing frames (R) and (L) to unhook the slider holders (R) and (L) of the slider assembly off the grooves of the cassette housing frames.


Coupling
Worm shaft
Pulley
(a)
assette housing
rame (R)
To be
widened.
Cassette housing
frame (L)
To be widened.
Slider
holder (R)
Slider holder (L)
Slider

(b)
Figure 1-17.

3. Lift the slider holder (R) upward about 2mm off the slider by pressing two catches with a thin tip screw driver. Take care not to damage the catches.

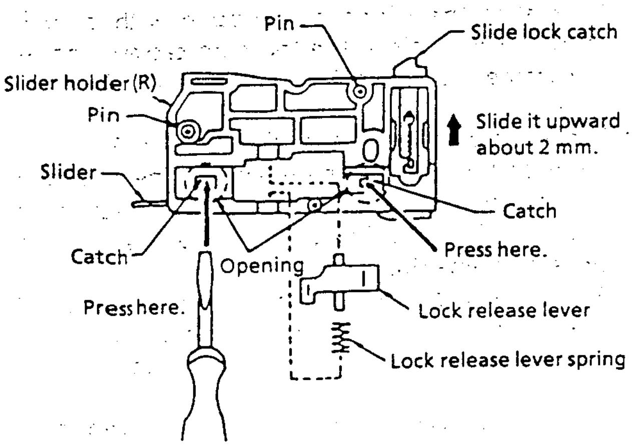

Pin
Slide lock catch
Slider holder (R)
Pin
Slide it upward
about 2 mm.
Slider
Catch
Catch
Press here.
Opening
Press here.
Lock release lever
Lock release lever spring

Figure 1-18.

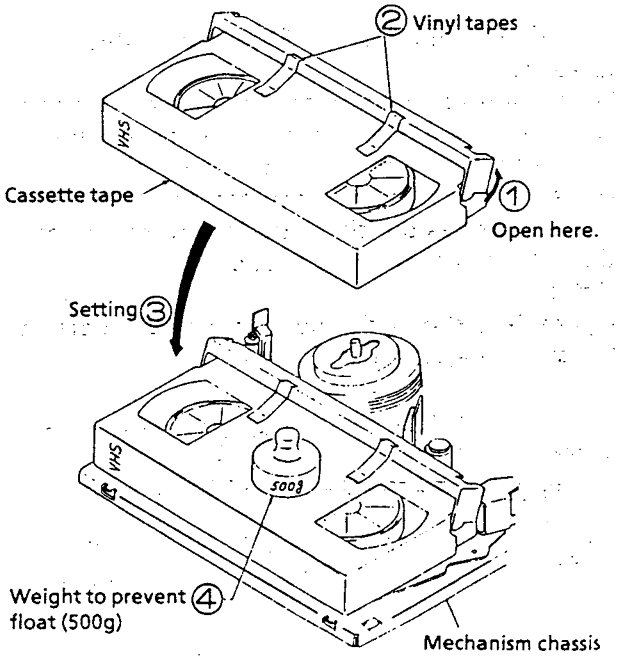
4. Remove the lock release lever from the slider holder (R)

- **Reassembly**

1. Follow the steps for removal in the reverse order. (See Figures 1-17 and 1-18.)
2. Attach the lock release lever to the slider holder (R).
3. Slide the slider holder (R) downward so that the two catches of the slider holder (R) fit the opening of the slider.
4. Slightly widen the cassette housing frames, and set the pins of slider holders (R) and (L) into the grooves of the cassette housing frames.
   Note:
   Check if the pins of the slider holders (R) and (L) fit the grooves of the cassette housing frames, and if the drive gear arm is sufficiently engaged with the slider holders.
5. Turn the coupling counterclockwise until the slider is at the cassette insertion opening.

TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Plug in the power cord.
2. Turn on the power switch.
3. Open the lid ① of a cassette tape by hand.
4. Hold the lid with two pieces of vinyl tape ②.
5. Set the cassette tape in the mechanism chassis.
6. Weight the cassette tape with a weight ④ to prevent floating.
7. Perform running test.


② Vinyl tapes
VHS
Cassette tape
①
Open here.
Setting ③
VHS
500g
Weight to prevent ④
float (500g)
Mechanism chassis

Note:
The weight should not be more than 500 g.

Figure 1-19.

REPLACEMENT AND HEIGHT CHECKING AND ADJUSTMENT OF REEL DISKS

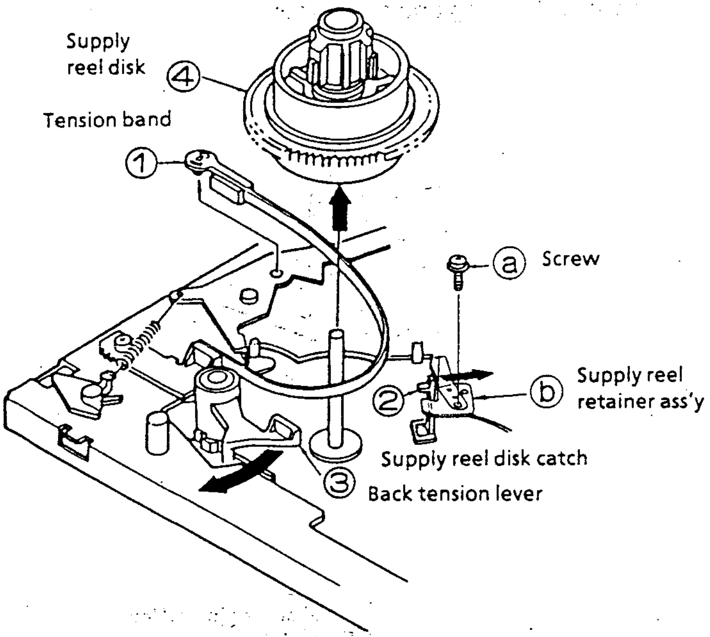
1. Remove the cassette housing control assembly.
2. Set the mechanism in the playback mode with no cassette tape in place. Unplug the power cord.
3. Set the idler gear in the center (neutral).

- **Removal (Supply reel disk)**

1. Remove the tension band ①. (Take care not to deform it.)
2. Unscrew the screw ⓐ and remove the supply reel retainer assembly ⓑ.
3. Release the supply reel disk catch ② and back tension lever ③.
4. Pull the supply reel disk ④ upward.

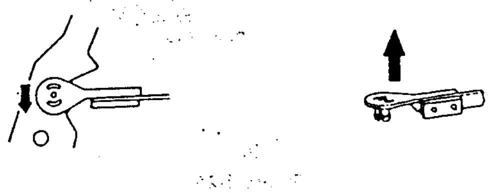
Notes:

1. Take care not to deform the tension band.
2. Check and adjust the tension pole position. (See page 20.)
3. Be careful not to damage the gear and the idler gear on the supply reel disk.
4. Press the tension band in the direction of the arrow for removal (See Figure 1-20(b)).


Supply reel disk
④
Tension band
①
ⓐ Screw
ⓑ Supply reel retainer ass'y
②
Supply reel disk catch
③ Back tension lever

(a)

Note:
When the tension band is pressed in the direction of the arrow for removal, the catch is hard to be deformed.



(b)

Figure 1-20.

- **Removal (Take-up reel disk)**

1. Unscrew the screw ⓒ and remove the take-up reel retainer.
2. Release the take-up reel disk catch ①.
3. Pull the take-up reel disk ② upward.

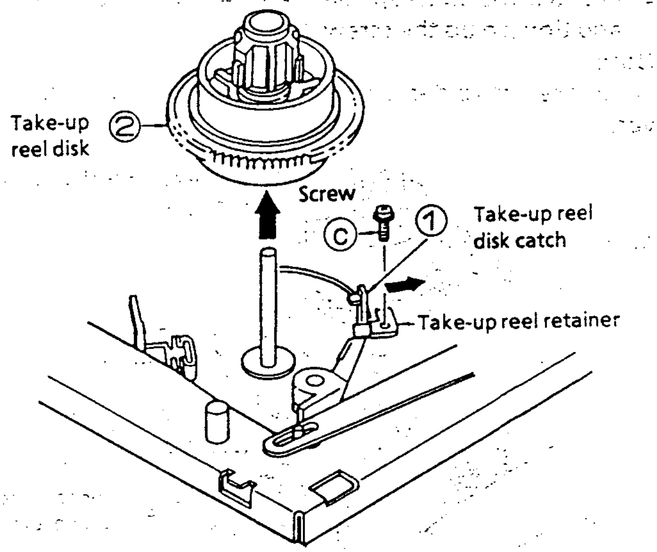

Take-up reel disk
②
Screw
ⓒ
①
Take-up reel disk catch
Take-up reel retainer

Figure 1-21.

- **Reassembly (Supply reel disk)**

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the supply reel disk catch ② and back tension lever ③.
3. Install a new supply reel disk ④ onto the shaft.
4. Replace the tension band ⑤ around the supply reel disk, and insert it to the hole of the tension arm.
5. Replace the supply reel retainer assembly ⓑ in place, and tighten up the screw ⓐ.

Notes:

1. Take enough care not to deform the tension band during installation of the supply reel disk.
2. Be careful not to damage the supply reel disk gear, back tension lever, supply reel disk catch, or the like with tools.

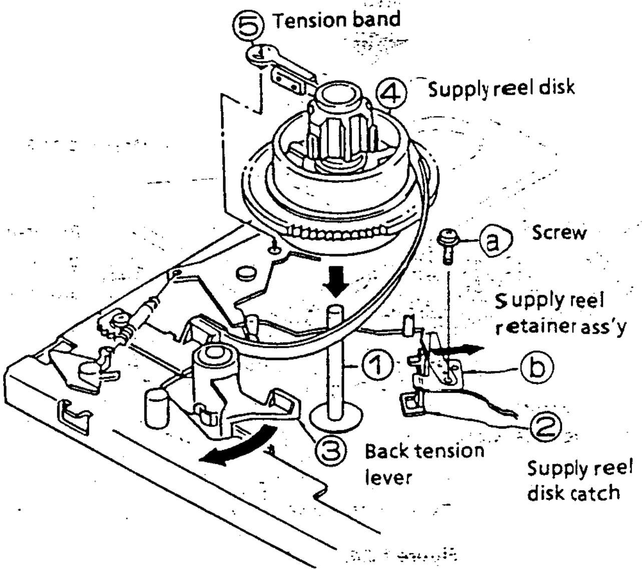
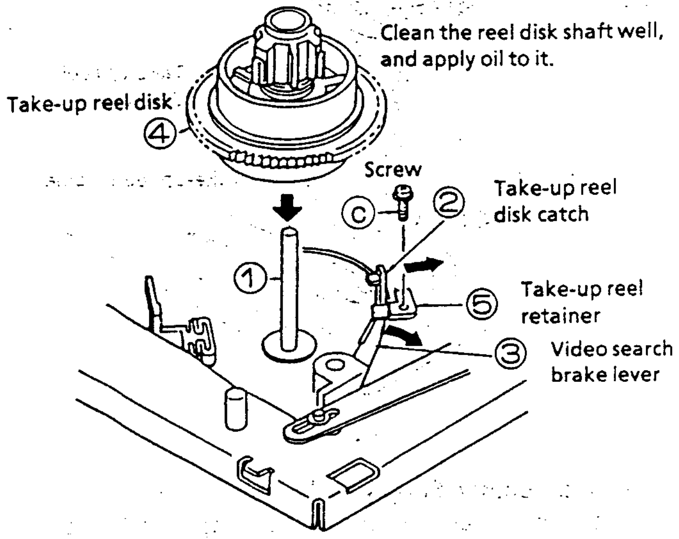

⑤ Tension band
④ Supply reel disk
ⓐ Screw
Supply reel retainer ass'y
ⓑ
①
②
③ Back tension lever
Supply reel disk catch

Figure 1-22.

- **Reassembly (Take-up reel disk)**

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the take-up reel catch ② and video search brake lever ③.
3. Install a new take-up reel disk ④ onto the shaft.
4. Replace the take-up reel retainer ⑤ in position and tighten up the screw ©.

Note:
Take care not to damage the video search brake lever.


Clean the reel disk shaft well, and apply oil to it.
Take-up reel disk
④
Screw
©
②
Take-up reel disk catch
①
⑤
Take-up reel retainer
③
Video search brake lever

Apply a thin tip driver to the arrow position in releasing for easier setting of the take-up reel disk.

Figure 1-23.

* After reassembly, check the video search rewind back tension (see page 19), and check the brake torque (see page 21).

- **Height checking and adjustment**

Note:
Place the master plane onto the mechanism unit, taking care not to hit the drum (see Figure 1-24).

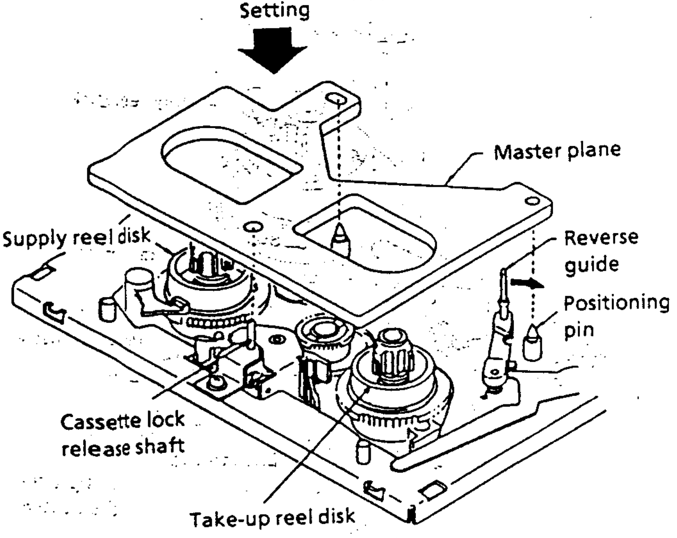

Setting
Master plane
Supply reel disk
Reverse guide
Positioning pin
Cassette lock release shaft
Take-up reel disk

Figure 1-24.

1. For height adjustment, press the reel disk with a finger, and turn it right and left with a screwdriver (see Figure 1-26 (a)).

Set the master plane releasing the reverse guide by a finger.

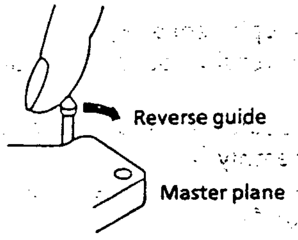
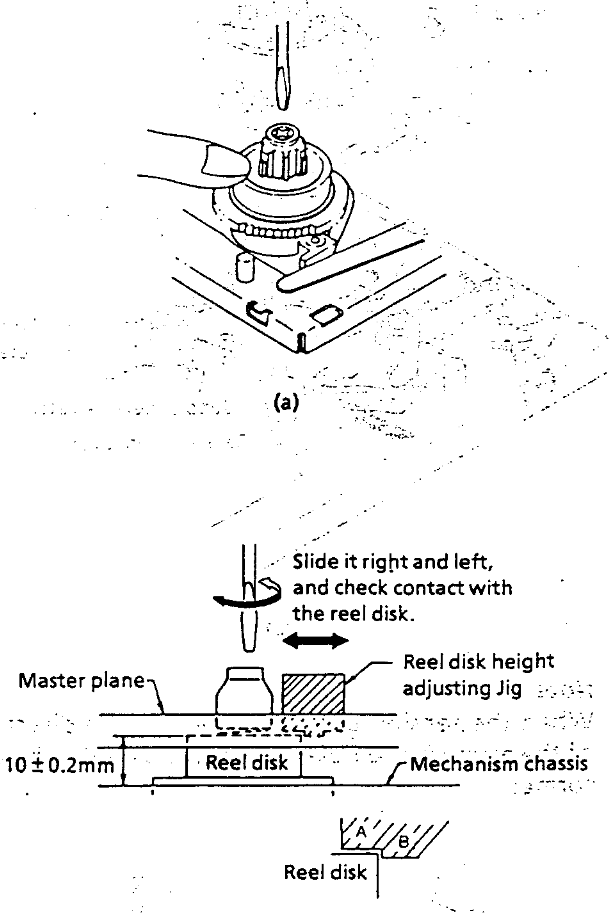

Reverse guide
Master plane

Figure 1-25.

2. Check that the reel disk is lower than part A but higher than part B. If the height is not correct, adjust the height adjusting screw (see Figure 1-26 (b)).

Note:
Whenever replacing the reel disk, perform the height checking and adjustment.


Slide it right and left, and check contact with the reel disk.
Master plane
Reel disk height adjusting Jig
10 ± 0.2mm
Reel disk
Mechanism chassis
A
B
Reel disk

(a)

(b)

Figure 1-26.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST FORWARD MODE

- Remove the cassette housing control assembly.

- Setting

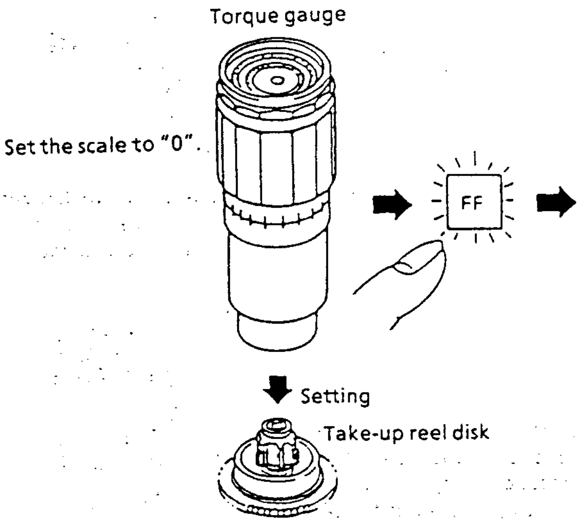

Torque gauge
Set the scale to "0".
FF
Setting
Take-up reel disk

Figure 1-27.

- Checking

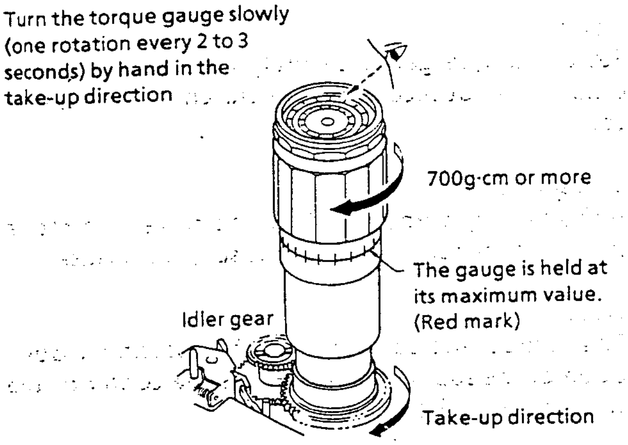

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction
700g·cm or more
The gauge is held at its maximum value. (Red mark)
Idler gear
Take-up direction

Figure 1-28.

- Adjustment

1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes:

1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

- Remove the cassette housing control assembly.

- Setting

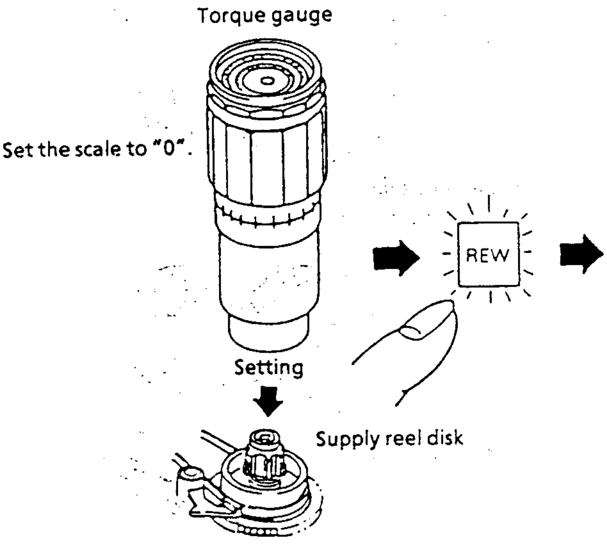

Torque gauge
Set the scale to "0".
REW
Setting
Supply reel disk

Figure 1-29.

- Checking

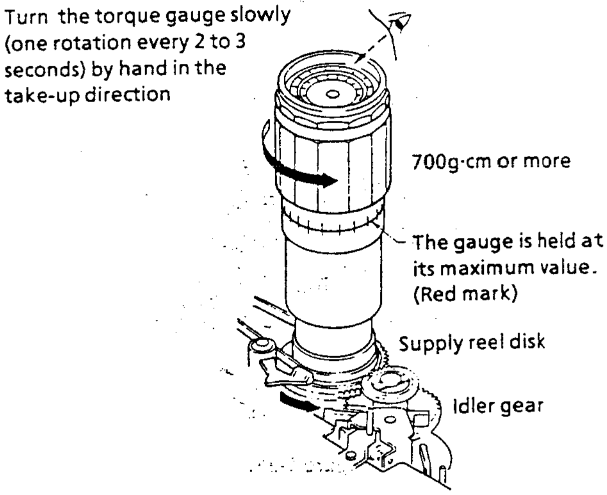

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction
700g·cm or more
The gauge is held at its maximum value. (Red mark)
Supply reel disk
Idler gear

Figure 1-30.

- Adjustment

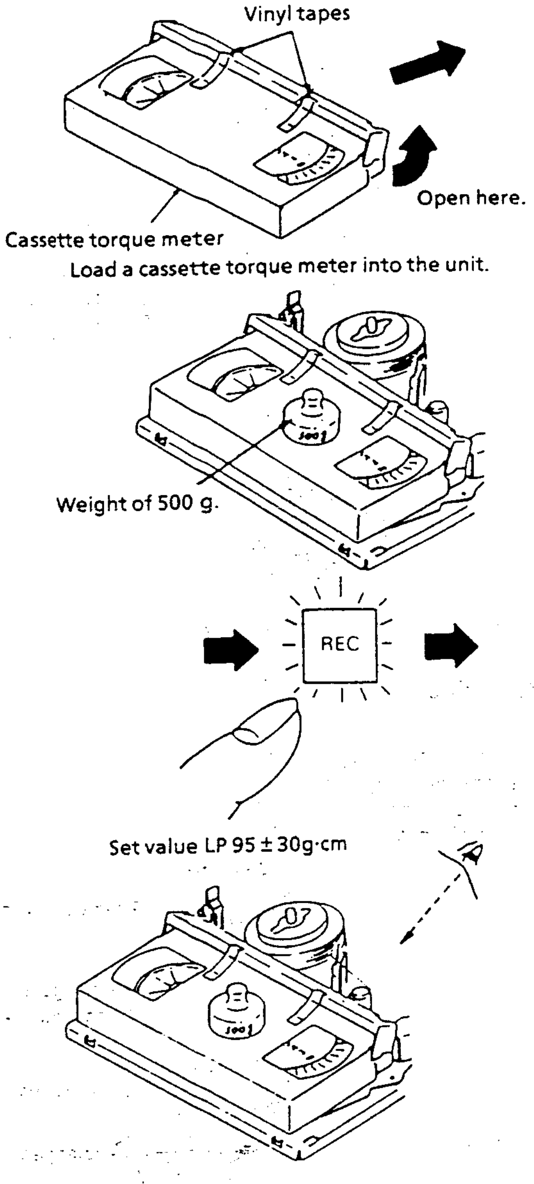
1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes:

1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN PLAYBACK MODE

1. Remove the cassette housing control assembly.
2. Open the lid of the cassette torque meter, and hold it with two pieces of vinyl tape.



Load a cassette torque meter into the unit.

Set value LP 95 ± 30g·cm

Figure 1-31.

- **Checking**

1. Check that the torque is in the range of 95 ± 30 g·cm.
2. The torque fluctuates due to the rotational deviation of the reel drive unit. Use the center of the fluctuation as the value.
3. Place the unit in the LP record mode, and check that the take-up torque is within the range.

- **Adjustment**

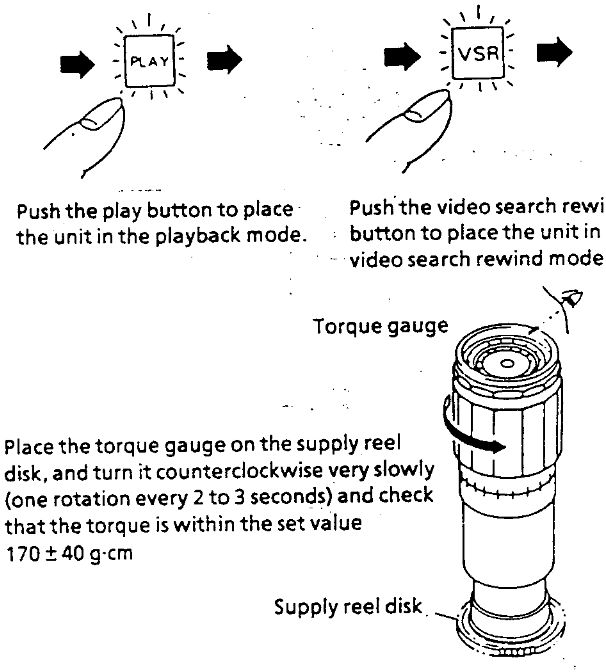
If the take-up torque in the playback mode is outside the range, replace the take-up reel disk.

Note:
Weight the cassette torque meter to prevent floating.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

- **Remove the cassette housing control assembly.**

- **Checking**



Push the play button to place the unit in the playback mode.

Push the video search rewind button to place the unit in the video search rewind mode.

Place the torque gauge on the supply reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 170 ± 40 g·cm

Figure 1-32.

Note:
Set the torque gauge securely on the supply reel disk. If it is not secure, the measurement will be incorrect.

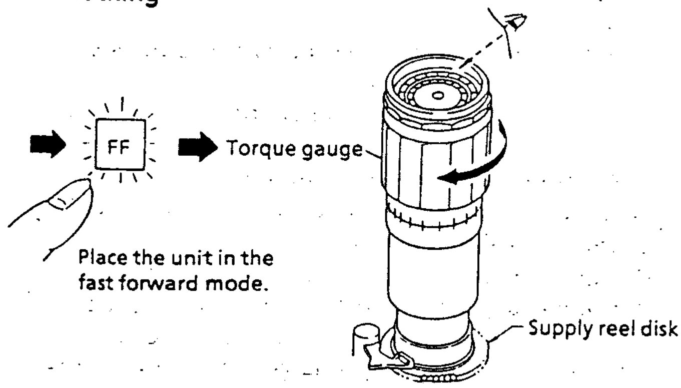
- **Adjustment**

If the take-up torque in video search rewind mode is outside the range, replace the supply reel disk.

Note:
The torque fluctuates due to the rotational deviation of the supply reel disk. Use the center of the fluctuation at the value.

CHECKING THE FAST FORWARD BACK TENSION

- **Remove the cassette housing control assembly.**
- **Checking**


FF
Torque gauge
Supply reel disk

Place the unit in the fast forward mode.

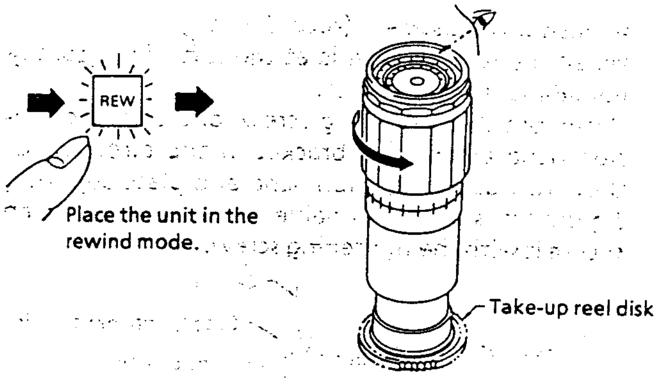
Place the torque gauge on the supply reel disk, and turn it clockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g·cm

Figure 1-33.

Note:
Set the torque gauge securely on the supply reel disk. If the torque gauge is not securely set on the reel disk, measurement will be incorrect.

CHECKING THE REWIND BACK TENSION

- **Remove the cassette housing control assembly.**
- **Checking**


REW
Take-up reel disk

Place the unit in the rewind mode.

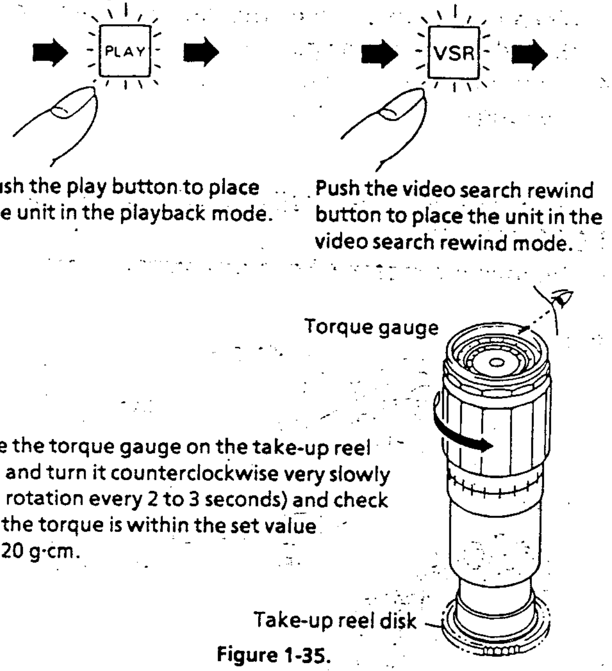
Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g·cm.

Figure 1-34.

Note:
Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE VIDEO SEARCH REWIND BACK TENSION

- **Remove the cassette housing control assembly.**
- **Checking**


PLAY
VSR
Torque gauge
Take-up reel disk

Push the play button to place the unit in the playback mode.

Push the video search rewind button to place the unit in the video search rewind mode.

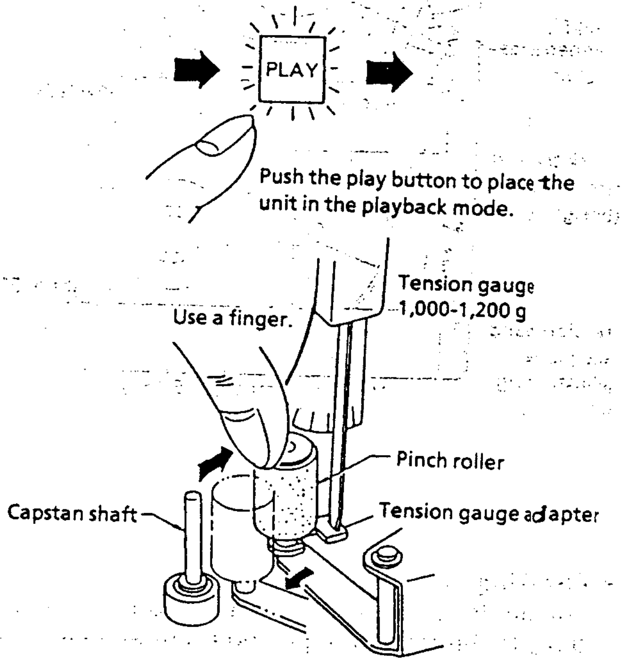
Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 45 ± 20 g·cm.

Figure 1-35.

Note:
Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE PINCH ROLLER PRESSURE

- **Remove the cassette housing control assembly.**


PLAY
Use a finger.
Tension gauge
1,000-1,200 g
Pinch roller
Capstan shaft
Tension gauge adapter

Push the play button to place the unit in the playback mode.

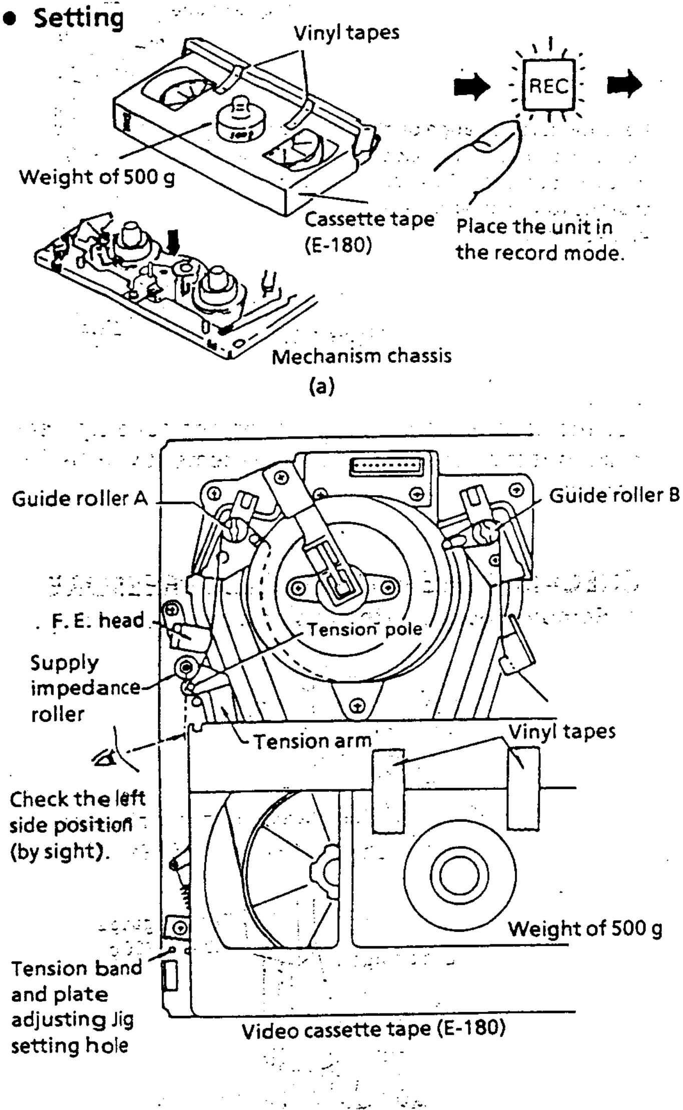
Figure 1-36.

1. Detach the pinch-roller from the capstan shaft.
2. Set the tension gauge by hooking the tension gauge adapter onto the pinch roller shaft.
3. Gradually release the pressure to allow the pinch roller to touch the capstan shaft. When the pinch roller just touches the capstan shaft, read the indication on the gauge.
4. Check that the reading of the tension gauge is in the range of 1000 to 1200 g.

CHECKING AND ADJUSTMENT OF TENSION POLE POSITION

- **Remove the cassette housing control assembly.**

- **Setting**


Vinyl tapes
REC
Weight of 500 g
Cassette tape
(E-180)
Place the unit in the record mode.
Mechanism chassis
Guide roller A
Guide roller B
F. E. head
Tension pole
Supply impedance roller
Tension arm
Vinyl tapes
Check the left side position (by sight).
Weight of 500 g
Tension band and plate adjusting Jig setting hole
Video cassette tape (E-180)

(a)

(b)

Figure 1-37.

- **Checking**

1. The guide rollers (A, B) operate to bring the tape outside the cassette tape and simultaneously the tension pole moves to the left, loading the tape. At that time (loading completed), check the position of the tension pole.
2. At the beginning of the tape (E-180), check that the tension pole's left side is aligned with the supply impedance roller's center by sight.
3. Check that the end of the tape is neither curled against the flange of the supply impedance roller nor over it.
4. During the video search rewind mode with no cassette tape in place, check that the supply reel disk is free from the tension band.

- **Position adjustment (record mode)**

When the tension pole is at the right of the supply impedance roller's center:
Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting Jig until it is in the set value range (center). Then secure it with the tightening screw.

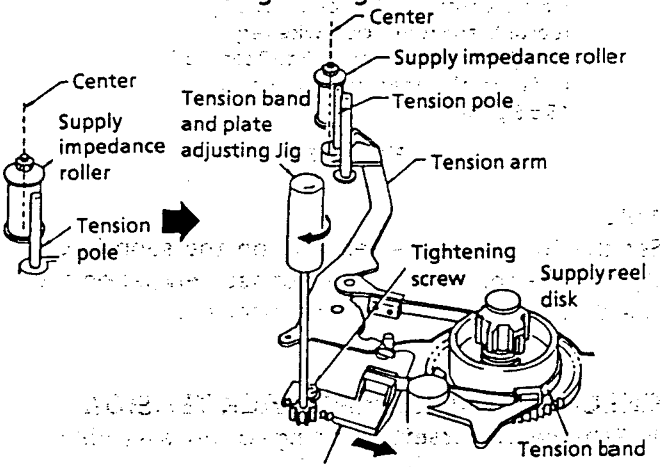

Center
Supply impedance roller
Center
Tension band and plate adjusting Jig
Tension pole
Supply impedance roller
Tension arm
Tension pole
Tightening screw
Supply reel disk
Tension band
Tension band adjustment bracket

Figure 1-38.

- **Position adjustment (record mode)**

When the tension pole is at the left of the supply impedance roller's center:
Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting Jig until it is in the set value range (center). Then secure it with the tightening screw.

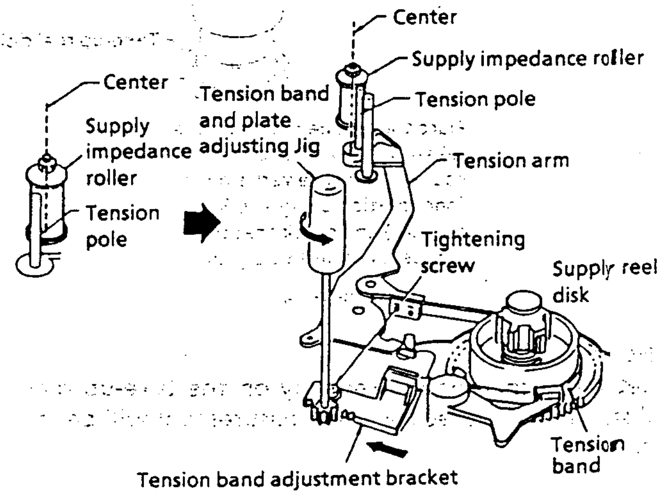

Center
Supply impedance roller
Center
Tension band and plate adjusting Jig
Tension pole
Supply impedance roller
Tension arm
Tension pole
Tightening screw
Supply reel disk
Tension band
Tension band adjustment bracket

Figure 1-39.

CHECKING AND ADJUSTMENT OF RECORD / PLAYBACK BACK TENSION

- **Remove the cassette housing control assembly.**

- **Checking**

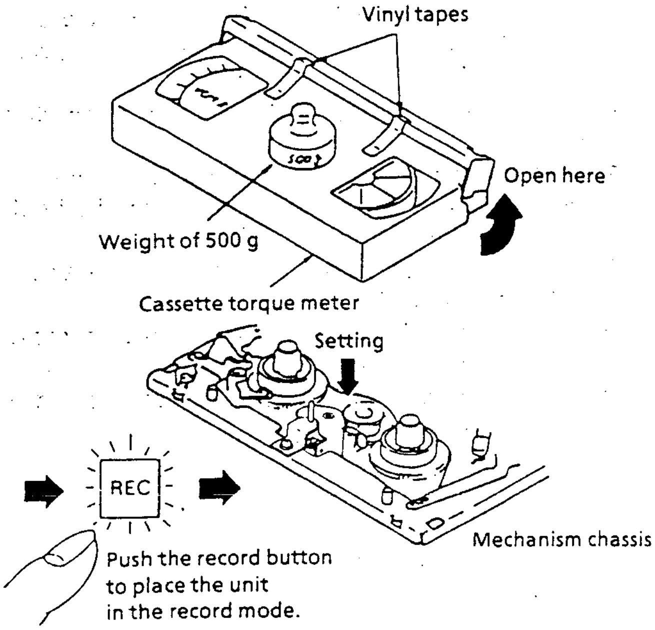

Vinyl tapes
Open here
Weight of 500 g
Cassette torque meter
Setting
REC
Mechanism chassis
Push the record button
to place the unit
in the record mode.

Figure 1-40.

1. Put a cassette torque meter into the unit.
2. Push the record button to place the unit in the record mode.
3. Check that the back tension indicated by the gauge is within the set range 31 to 36 g·cm.

Notes:

1. Make sure that the video cassette tape is over the retaining guide.
2. Make sure that the tape is not slack nor damaged at either end.

- **Adjustment**

1. If the reading of the cassette torque meter is less than specified, move the tip of the tension spring hook plate toward the hole A.
2. If the reading of the cassette torque meter is more than specified, move the tip of the tension spring hook plate toward the hole B.
   Note:
   Put a thin screw driver (–) in the shaft hole, lean it toward you, and turn it for easier shift of the tension spring hook plate in the direction of A or B.

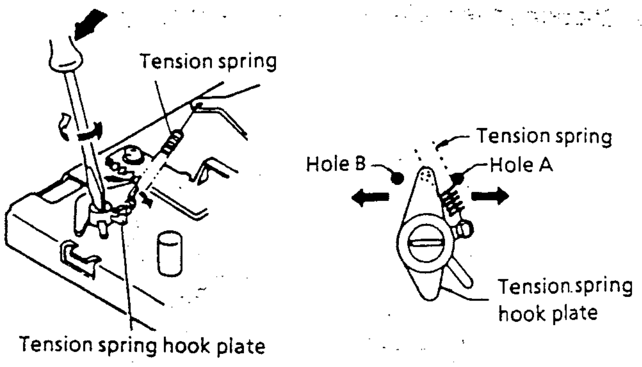

Tension spring
Tension spring hook plate
Hole B
Tension spring
Hole A
Tension spring
hook plate

Figure 1-41.

CHECKING THE BRAKE TORQUE

- **Checking the brake torque at the supply side**

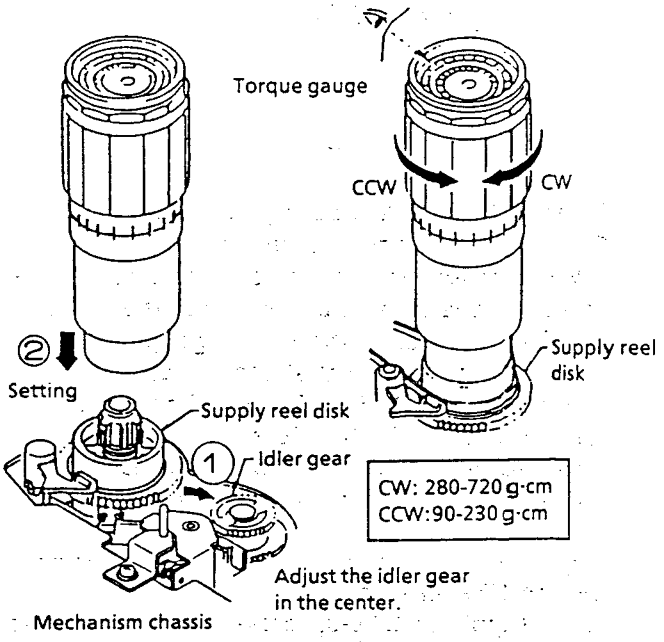

Torque gauge
CCW
CW
②
Setting
Supply reel disk
①
Idler gear
Supply reel disk
CW: 280-720 g·cm
CCW: 90-230 g·cm
Adjust the idler gear
in the center.
Mechanism chassis

Figure 1-42.

1. Remove the cassette housing control assembly.
2. Place the mechanism in the stop mode by unplugging the power cord in the fast forward or rewind mode.
3. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the supply brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CW direction = 280 to 720 g·cm, CCW direction = 90 to 230 g·cm, and that the brake torque in the CW direction is at least twice as high as that in the CCW direction.

- **Checking the brake torque at the take-up side**

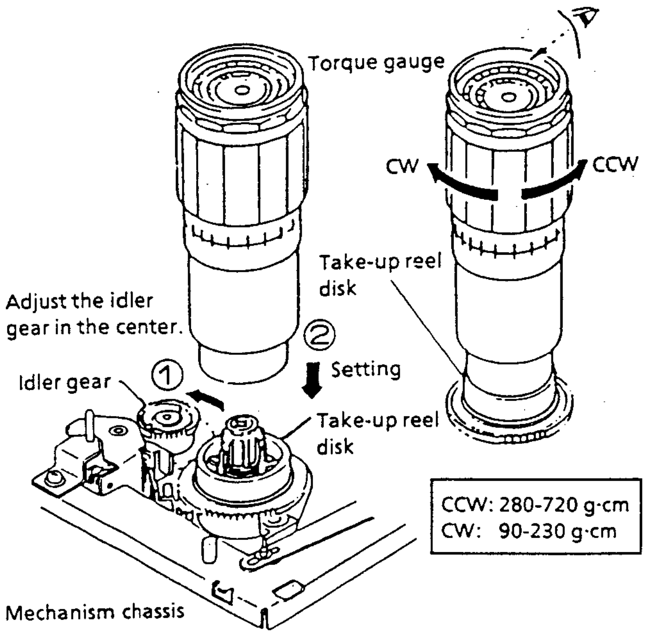

Torque gauge
CW
CCW
Take-up reel disk
Adjust the idler gear in the center.
②
Setting
Idler gear
①
Take-up reel disk
CCW: 280-720 g·cm
CW: 90-230 g·cm
Mechanism chassis

Figure 1-43.

1. Remove the cassette housing control assembly.
2. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the take-up brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CCW direction = 280 to 720 g·cm, CW direction = 90 to 230 g·cm, and that the brake torque in the CCW direction is at least twice as high as that in the CW direction.

- **Adjustment of the brake torque at the supply side and the take-up side**

1. If the supply or take-up brake torque is outside the range, clean the supply or take-up reel disk break lever felt, then recheck the torque.
2. If the supply or take-up brake torque is still outside the range, replace the main brake or the main brake spring.

REPLACEMENT OF MAIN BRAKE

1. Remove the reel belt and the reel block FFC (Full Flat Cable).
2. Remove the cut washer ① off the brake shifter.
3. Unscrew the four screws ② and then the take-up reel retainer.
4. Remove the reel block assembly Ⓐ downward.
5. Remove the cut washer ③ first and then the reel pulley.
6. Unscrew the two screws ④ and detach the idler assembly.
7. Unhook the back tension lever spring ⑤ and remove the back tension lever ⑥. (Undo the hook under the reel chassis.)
8. Open the shifter latch ⑦ and remove the brake shifter assembly ⑧.
9. Release the reel disk catches ⑬and then remove the left and right reel disk assemblies ⑨ and ⑩.
10. Finally remove the main brake levers ⑪and the main brake spring ⑫.

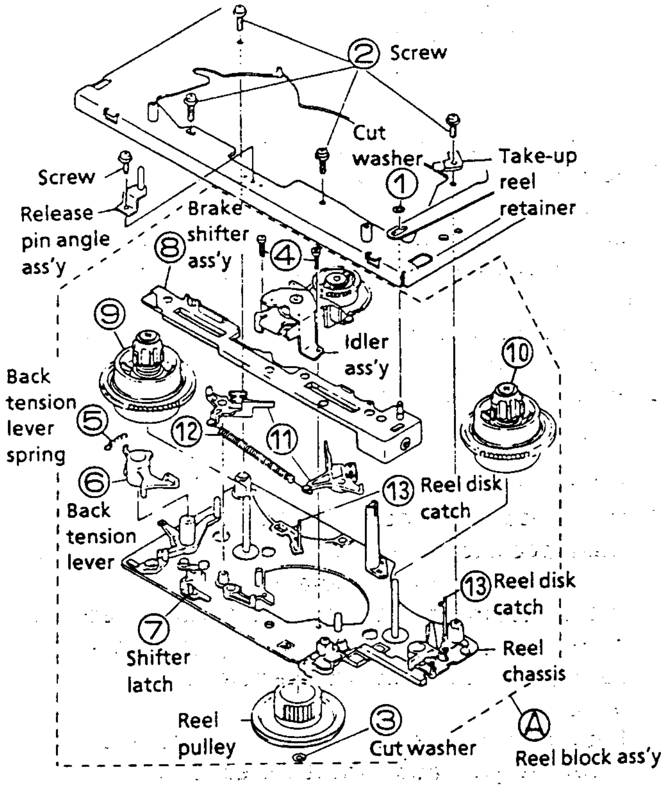

② Screw
Cut washer
①
Take-up reel retainer
Screw
Release pin angle ass'y
Brake shifter ass'y
⑧
④
⑨
Idler ass'y
⑩
Back tension lever spring
⑤
⑫
⑪
⑥
Back tension lever
⑬ Reel disk catch
⑬ Reel disk catch
⑦
Shifter latch
Reel chassis
Reel pulley
③
Cut washer
Ⓐ
Reel block ass'y

Figure 1-44.

Note:
When the main brake is replaced, perform the height checking and adjustment (see page 16), and the brake torque checking (see page 21).

REPLACEMENT OF A/C (Audio/Control) HEAD

1. Remove the cassette housing control assembly.
2. Place the unit in the unloading mode, and unplug the power cord.

- **Removal**

1. Loosen the tilt adjusting screw ①.
2. Remove the azimuth adjusting screw ②.
3. Remove the A/C head screw ③.
4. Unsolder the A/C head PWB soldered to the A/C head assembly.

Notes:

1. After replacement, be sure to perform the adjustment of the tape drive train (see page 25). Under any circumstances, avoid touching the head. Clean the head, if touched with your finger, with alcohol.
2. Take care that the azimuth spring does not fly off when removing the A/C head screw.

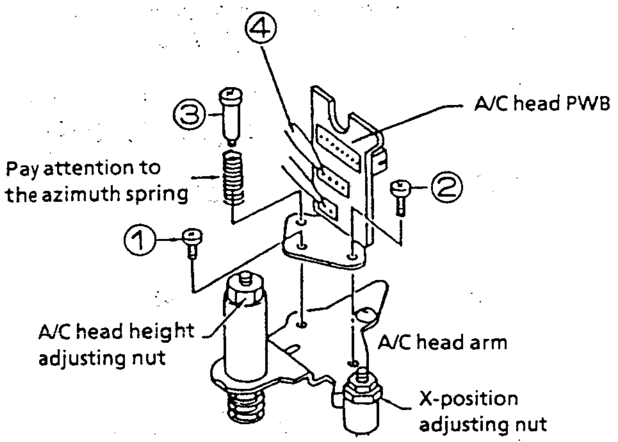

④
③
A/C head PWB
Pay attention to the azimuth spring
②
①
A/C head height adjusting nut
A/C head arm
X-position adjusting nut

Figure 1-45.

- **Replacement**

1. Solder the removed A/C head PWB onto a new A/C head assembly.
2. The A/C head assembly is attached so that the A/C head arm and A/C head plate are roughly parallel to each other.

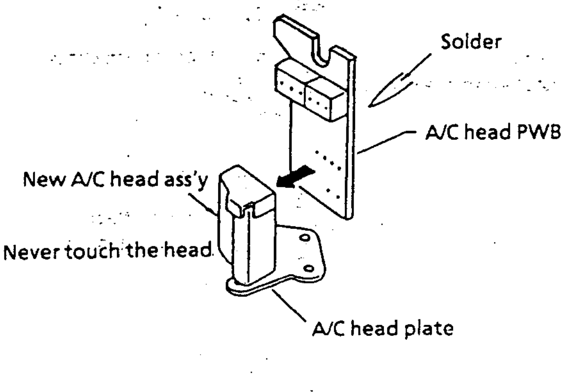

Solder
A/C head PWB
New A/C head ass'y
Never touch the head
A/C head plate

Figure 1-46.

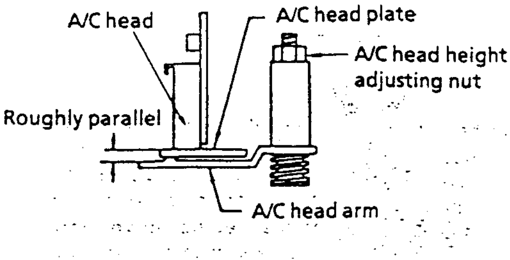

A/C head
A/C head plate
A/C head height adjusting nut
Roughly parallel
A/C head arm

Figure 1-47.

- **Adjustment**

[A/C head tilt angle]

1. Set the mechanism to the loading mode.
2. Place the A/C head tilt adjusting Jig ①.
3. Slowly turn the tilt adjusting screw ② with a screw driver until there is no gap between the Jig and the A/C head.

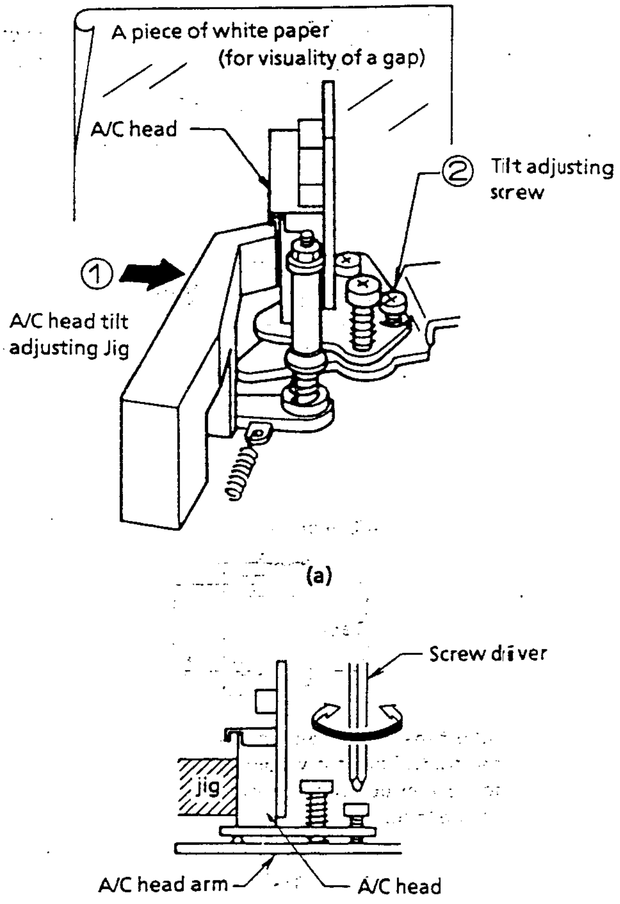
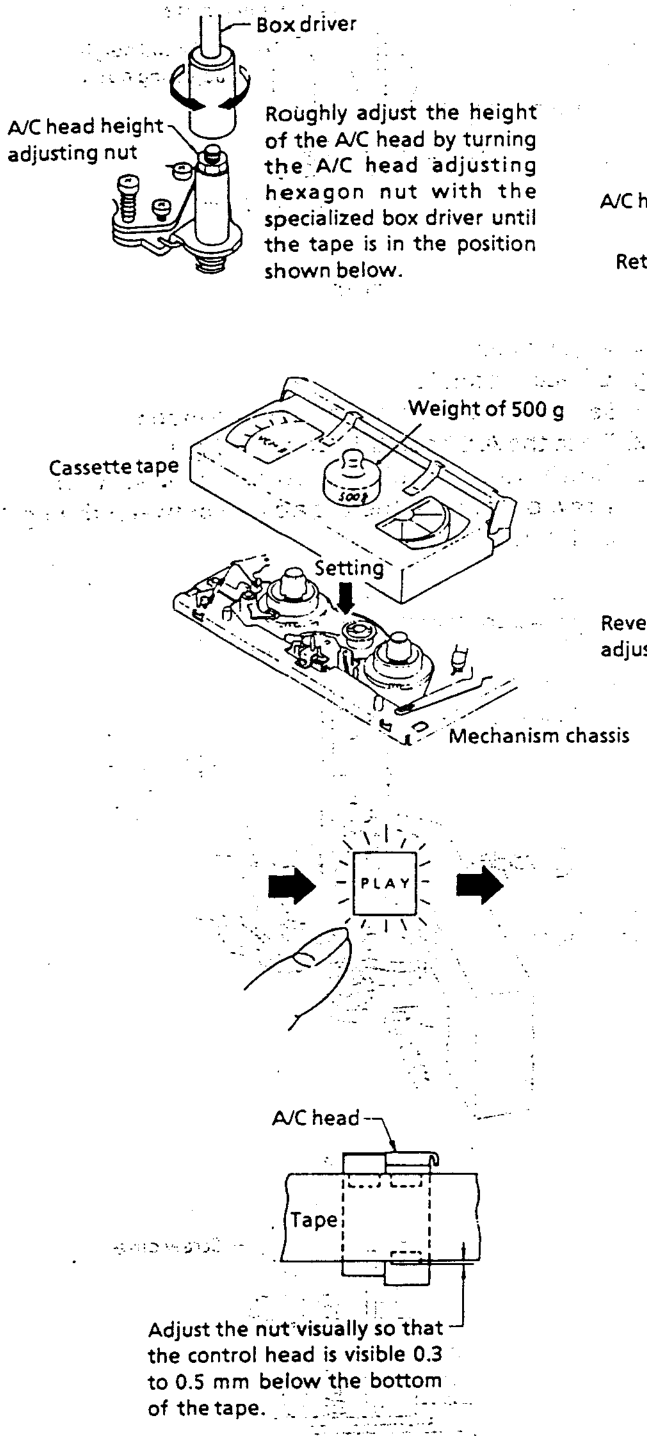

A piece of white paper (for visuality of a gap)
A/C head
②
Tilt adjusting screw
①
A/C head tilt adjusting Jig
(a)
Screw driver
jig
A/C head arm
A/C head
(b)

Figure 1-48.

[A/C head height rough adjustment]


Box driver
A/C head height adjusting nut
Weight of 500 g
500g
Cassette tape
Setting
Mechanism chassis
PLAY
A/C head
Tape

Roughly adjust the height of the A/C head by turning the A/C head adjusting hexagon nut with the specialized box driver until the tape is in the position shown below.

Adjust the nut visually so that the control head is visible 0.3 to 0.5 mm below the bottom of the tape.

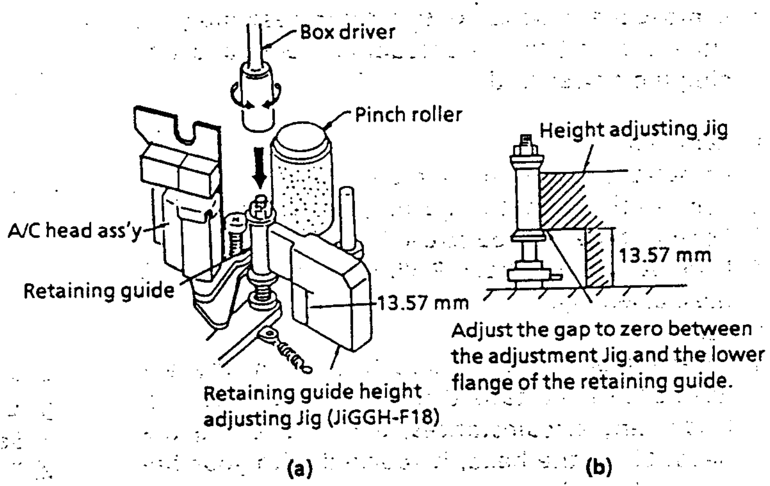
Figure 1-49.

HEIGHT ADJUSTMENT OF RETAINING GUIDE AND REVERSE GUIDE

Note:

Before the rough adjustment of the tape drive train, check that the retaining guide height is within the value in Figure 1-50 by using the special Jigs.

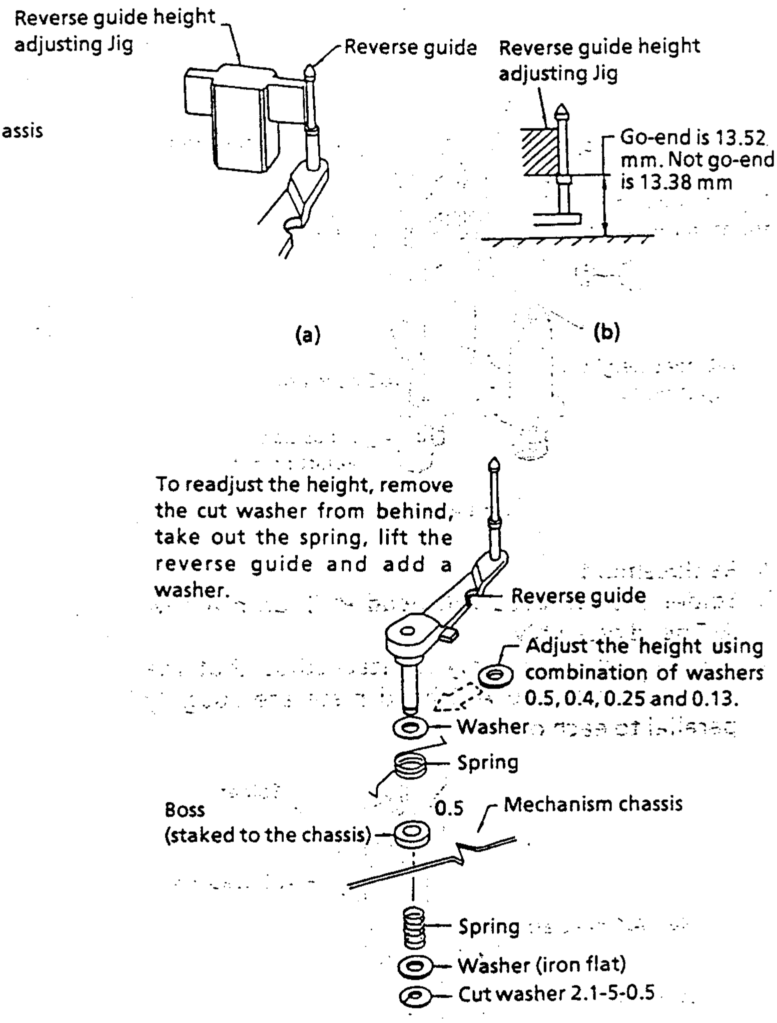
[Height adjustment of retaining guide]


Box driver
Pinch roller
A/C head ass'y
Retaining guide
13.57 mm
Retaining guide height adjusting Jig (JiGGH-F18)
Height adjusting Jig
13.57 mm
(a)
(b)

Adjust the gap to zero between the adjustment Jig and the lower flange of the retaining guide.

Figure 1-50.

[Height adjustment of reverse guide]


Reverse guide height adjusting Jig
Reverse guide
Reverse guide height adjusting Jig
Go-end is 13.52 mm. Not go-end is 13.38 mm
(a)
(b)
Reverse guide
Washer
Spring
0.5
Mechanism chassis
Boss (staked to the chassis)
Spring
Washer (iron flat)
Cut washer 2.1-5-0.5

To readjust the height, remove the cut washer from behind, take out the spring, lift the reverse guide and add a washer.

Adjust the height using combination of washers 0.5, 0.4, 0.25 and 0.13.

(c)

Figure 1-51.

ADJUSTMENT OF TAPE DRIVE TRAIN

1. Remove the cassette housing control assembly.
2. Check and adjust the position of the tension pole. (See page 20.)
3. Check and adjust the video search rewind back tension. (See page 19.)
4. Set the tilt angle of the A/C head. (See page 23.)
5. Rough adjustment of tape drive train.
   a) Connect the oscilloscope to the test point for PB CHROMA envelope output (TP2201). Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP2202).
   b) Loosen the setscrew at the lower part of the guide roller, and adjust it with an adjusting screw driver (JIGDRIVERH-4) so that the guide roller turns smoothly. (Do not overloosen the setscrew, which causes insecurity of the guide roller.) (See Figure 1-52.)
   c) Set the alignment tape (monoscope pattern) on the reel disk, and place the unit in the playback mode.
   (Place a 500 g. weight on the cassette tape to prevent floating of the cassette tape.)

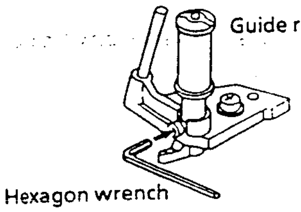


Figure 1-52.

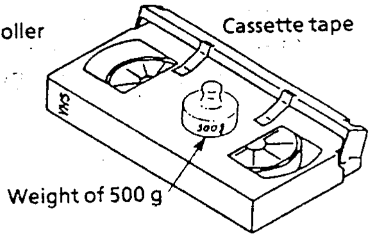
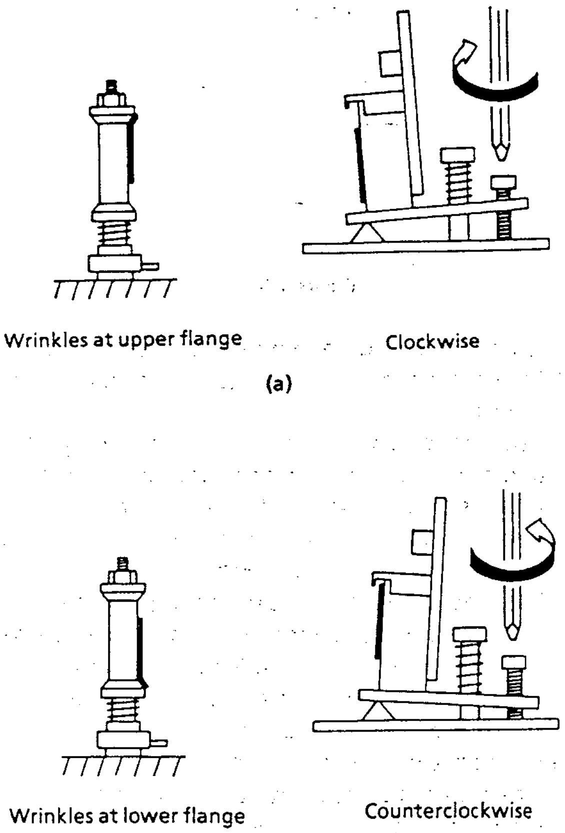


Figure 1-53.

   d) Change the envelope waveform from MAX to MIN, and MIN to MAX by pushing the (+) or (–) tracking button, and check a flat response is obtained on the waveform.
   e) If a flat response cannot be obtained, roughly adjust the guide rollers on the supply side and take-up side using an adjusting screw driver until a flat response can be obtained.
   f) Turn the A/C head tilt adjusting screw with a screwdriver to prevent the tape from wrinkling at the upper and lower flanges of the fixed guide.
      1) Wrinkles at the upper flange : Turn the above adjusting screw clockwise, as shown in Fig. 1-54 (a).
      2) Wrinkles at the lower flange : Turn the above adjusting screw counterclockwise, as shown in Fig. 1-54 (b).



(a)

(b)

Figure 1-54.

Notes:

1. Place the tracking control in the center position, and adjust the X-position adjusting nut so that the PB CHROMA envelop becomes maximum for easier rough adjustment of the tape drive train.
2. In the rough adjustment, pay particular attention to the outlet side.

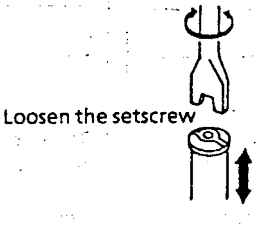


Figure 1-55.

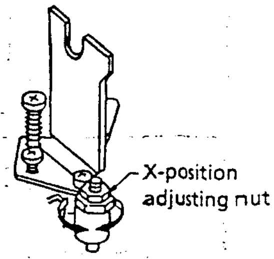


Figure 1-56.

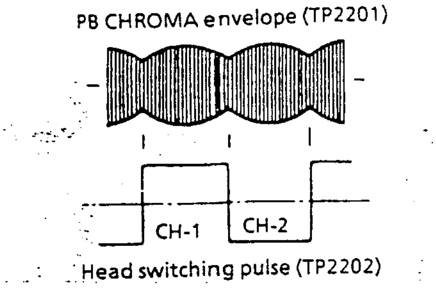


Figure 1-57.

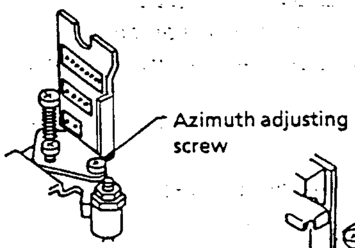


Figure 1-58.

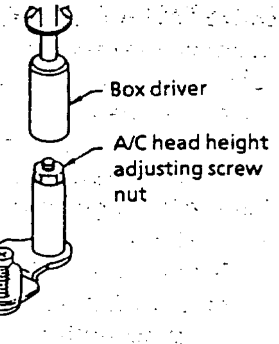


Figure 1-59.

6. Adjustment of A/C head height and azimuth.
   a) Connect an oscilloscope to the audio output terminal.
   b) Use the alignment tape and play back its audio 6 kHz signal (monoscope pattern for video signal). Adjust the azimuth adjusting screw to obtain the maximum audio output on an oscilloscope. (See Figure 1-58.)
   c) Use the alignment tape and play back its audio 1 kHz signal (colour bar for video signal) and slowly rotate the A/C head height adjusting nut with the special box driver to obtain the maximum audio output.
   d) Perform the adjustment in b) again.
   e) After this adjustment, apply glyptal to the screws and nuts to fix them.

7. Adjustment of tape drive train and X-Position.
   a) Connect the oscilloscope to the test points (TP2201) for PB CHROMA envelope output. Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP2202).
   b) Play back the tape drive train alignment tape.
   c) Push the (+) or (–) button to change the envelope waveform from MAX to MIN, and MIN to MAX. Adjust the guide roller's height on the supply and take-up sides with an adjusting screw driver, to obtain an envelop waveform that is as flat as possible.
   d) If the tape is above or below the helical lead, the PB CHROMA waveform will take the shape shown in Figure 1-60.
   e) Adjust for maximum flatness of the envelope as the step 5, e) in page 25.

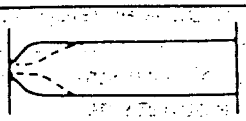
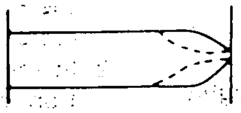
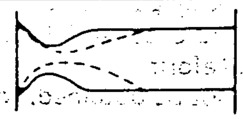
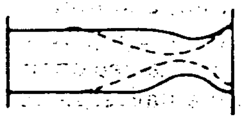
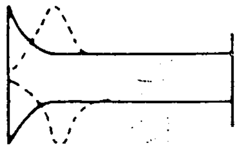
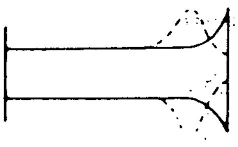
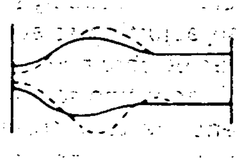
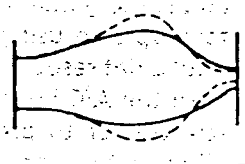
	When the tape is above the helical lead.		When the tape is below the helical lead.	
	Supply side	Take-up side	Supply side	Take-up side
				
				
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Supply side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the envelope.	Take-up side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the envelope.

Figure 1-60.

f) Push the (+) or (–) tracking button to check that a flat response is obtained on the envelope waveform.
g) Secure the guide roller by tightening the guide roller setscrew in the unloading mode.
h) Play back the tape drive train alignment tape to check that the envelope waveform does not change.

8. Adjustment of A/C head X-position.
a) Push the (+) and (–) tracking buttons at the same time to the preset mode.
b) Rotate the X-position adjusting nut with an adjusting box driver, and adjust the A/C head position for maximum head switching pulse low side envelope.
c) Adjust the playback switching point.
d) Check the flatness of the envelope waveform and sound by playing back a recorded tape.

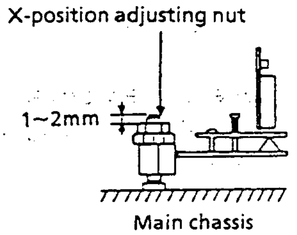

X-position adjusting nut
1~2mm
Main chassis

Figure 1-61.

REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- **Remove the cassette housing control assembly.**

- **Removal (Follow the order of indicated numbers.)**

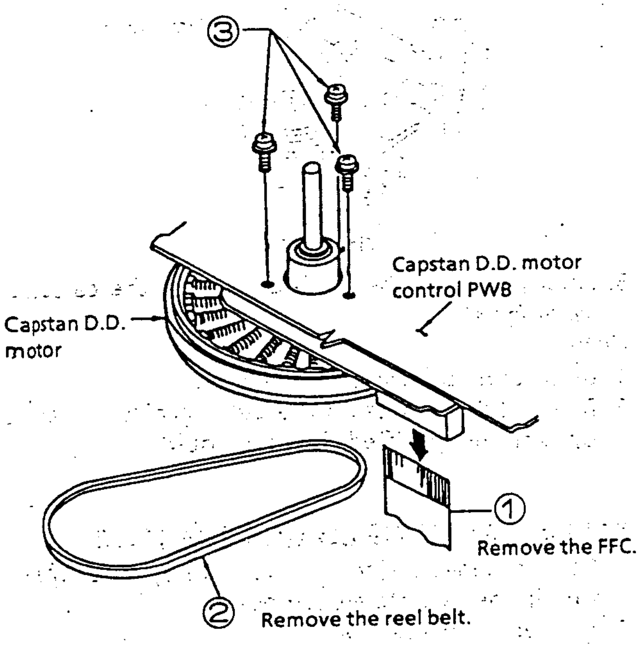

Remove the three screws.
③
Capstan D.D. motor control PWB
Capstan D.D. motor
①
Remove the FFC.
②
Remove the reel belt.

Figure 1-62.

- **Reassembly**

1. Mount the capstan motor on the mechanism chassis making sure not to allow the capstan shaft to hit the mechanism chassis, and attach it with the three screws.
2. Insert the FFC into the capstan D.D. motor control PWB.
3. Attach the reel belt.

Notes:

1. After installing the capstan D.D. motor, be sure to rotate the capstan D.D. motor and check the movement.
2. Check and adjust the servo circuit.

REMOVAL AND REASSEMBLY OF THE LOADING GEAR BLOCK

1. Remove the cassette housing control assembly.
2. Remove the reel belt.
3. Remove the reel block.

- **Removal**

Notes:

1. Use care not to deform the parts hooked to the take-up loading gear and supply loading gear as shown in Figure 1-63.

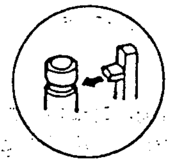


Figure 1-63.

2. In removing the loading gear, secure the guide roller with a rubber band or the like beforehand for easier reassembly.

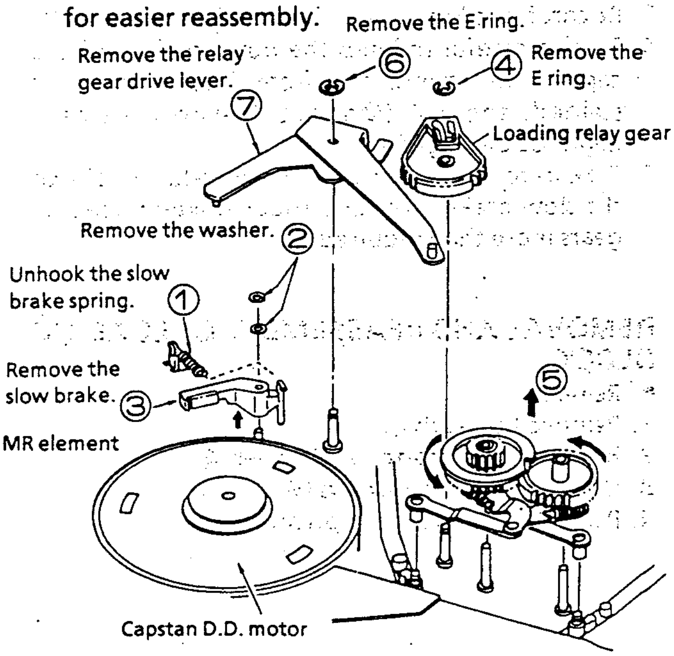

Remove the E ring.
Remove the relay gear drive lever.
⑥
④
Remove the E ring.
⑦
Loading relay gear
Remove the washer.
②
Unhook the slow brake spring.
①
Remove the slow brake.
③
⑤
MR element
Capstan D.D. motor

Figure 1-64.

1. Remove the slow brake spring ①.
2. Remove the washers ②.
3. Remove the slow brake lever ③.
4. Remove the E ring ④.
5. Rotate the take-up loading gear, take-up loading arm assembly, supply loading gear and supply loading arm assembly slightly in the loading direction, and take them ⑤ all out.
6. Remove the E ring ⑥.
7. Remove the relay gear drive lever ⑦.

- **Reassembly**
  Reverse the procedure. Be sure to match the tally marks on the gears.

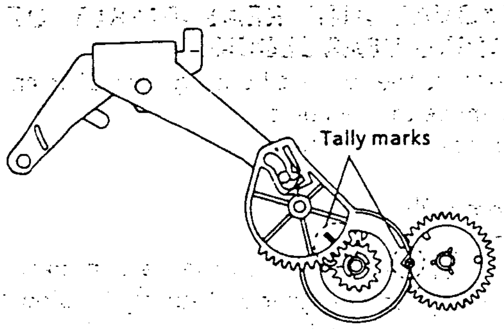


Figure 1-65.

Notes:
1. When reassembling, apply specified grease to the following points; all the gear teeth, all the gear shafts and the cam groove of loading relay gear.
2. Be careful not to deform the supply/take-up loading arms.
3. Be careful to keep clean the slow brake lever felt.
4. Be also careful to keep the outer surface of the capstan D.D. motor free from dust and dirt. (If stained, the MR (Magnet Resistor) element might be damaged.)
5. Take care not to deform the anti-fall hooks of the slow brake lever and supply/take-up loading gears more than required.

REMOVAL AND REASSEMBLY OF LOADING BLOCK

- **Removal**

1. Remove the leads ①.
2. Remove the cassette loading belt ②.
3. Unscrew the three screws ③.
4. Pull the loading block upward.

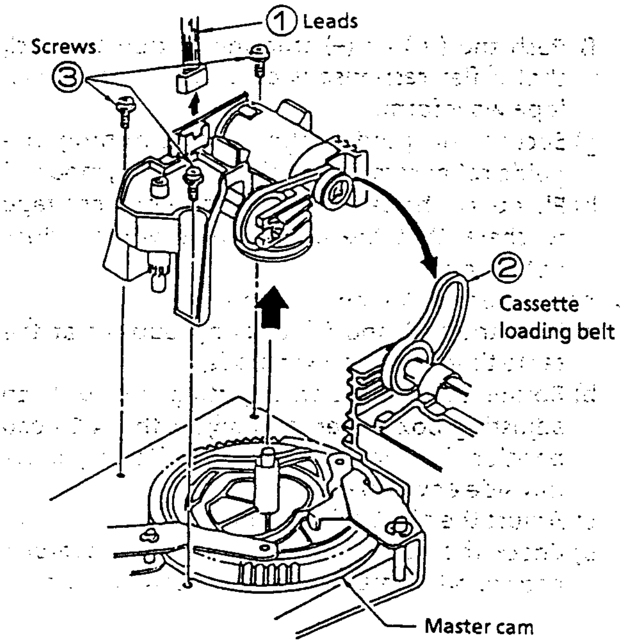


Figure 1-66.

Note:
When using a magnetic screw driver in removal of three screws, do not allow the magnetic driver to hit the A/C head or drums.

- **Reassembly**

1. Turn the master cam all the way counter-clockwise.
2. Match the tally mark on the cam switch with the mating mark. Fit the loading block and the master cam with each other. Tighten up the three screws.

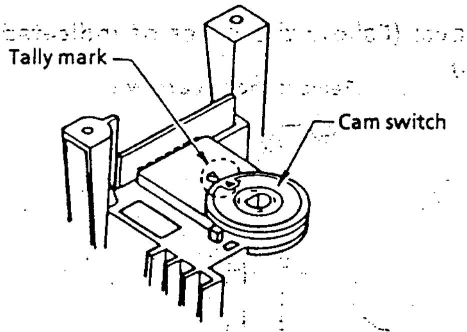


Figure 1-67.

3. Finally connect the leads and apply the cassette loading belt.

Notes:
1. Be careful not to scratch the gear.
2. Be careful not to stain the belt. If dirty, clean it up with the specified cleaning liquid.

REPLACEMENT OF LOADING MOTOR

1. Set the cassette ejected condition by placing the unit in the cassette eject mode.
2. Unplug the power cord.
3. Remove the loading block in accordance with the statements and drawings above.

- **Removal**

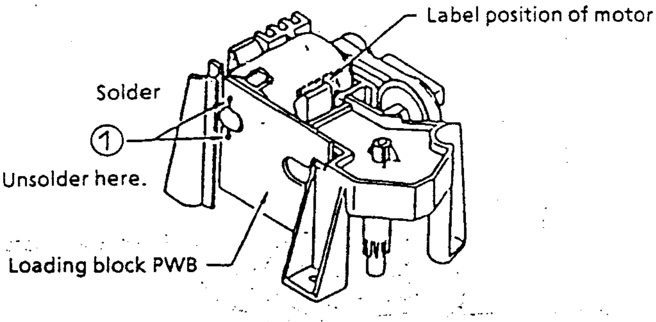
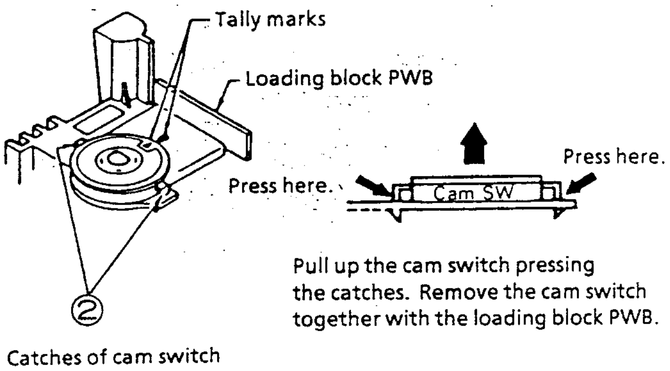

Label position of motor
Solder
①
Unsolder here.
Loading block PWB

Figure 1-68.

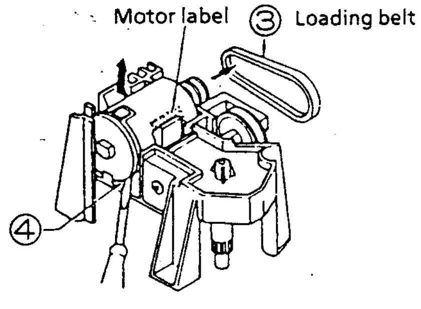
1. Unsolder the leads ① from the loading motor.
2. Unlock the left and right catches ② of the cam switch off the loading block. Take out the cam switch and loading block PWB (See Figure 1-69).


Tally marks
Loading block PWB
Press here.
Press here.
Cam SW
②
Catches of cam switch

Pull up the cam switch pressing the catches. Remove the cam switch together with the loading block PWB.

Figure 1-69.

3. Take out the loading belt ③.
4. Pry up the back end of the loading motor with a screw driver or the like as in Figure 1-70 and take out the motor.


Motor label
③ Loading belt
④

Put the tip of a screwdriver or the like here. Pry up the back end of the loading motor and take out the motor.

Figure 1-70.

- **Reassembly**

1. Remove the loading motor, and mount a new loading motor as in Figure 1-71.
2. Place the loading motor so that its label is visible as shown in Figure 1-71. Make sure that the screw hole at the motor shaft, protuberance on the loading block, and the motor's back end marked with the arrow are mated with each other.

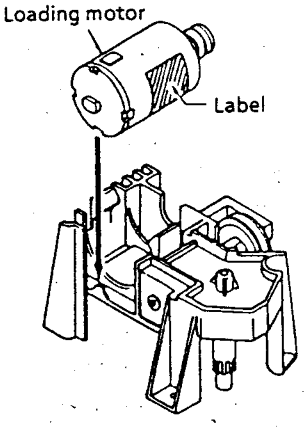
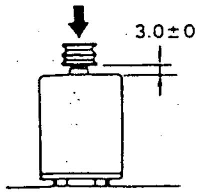

Loading motor
Label

Figure 1-71.



Note:
When press-fitting the loading motor pulley, keep the pressure less than 5 kg, and the gap between the motor and pulley should be 3.0±0.1 mm.

Figure 1-72.

3. Set the loading block PWB and the cam switch in position.
4. Resolder the leads to the loading motor.
5. Finally place the loading block (See page 28).
6. Attach the loading belt.

REPLACEMENT OF MASTER CAM

- **Removal**

1. Remove the E ring ①.
2. Remove the half-loading drive lever ②.
3. Remove the E ring ③.
4. Remove the pinch roller lever ④.
5. Pull out the master cam ⑤ upward.

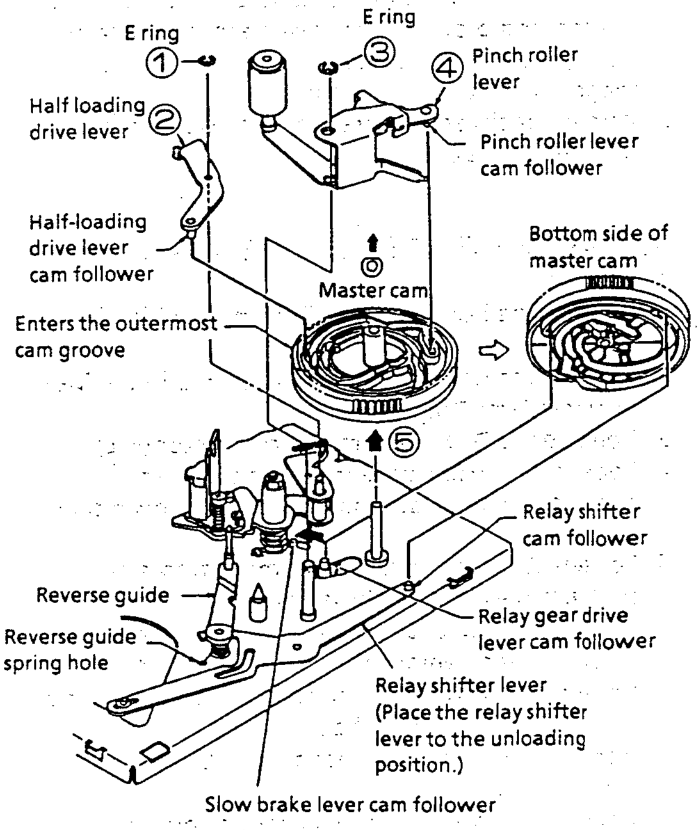

E ring
①
E ring
③
④ Pinch roller lever
Half loading drive lever ②
Pinch roller lever cam follower
Half-loading drive lever cam follower
⑤
Master cam
Bottom side of master cam
Enters the outermost cam groove
⑤
Relay shifter cam follower
Reverse guide
Reverse guide spring hole
Relay gear drive lever cam follower
Relay shifter lever (Place the relay shifter lever to the unloading position.)
Slow brake lever cam follower

Figure 1-73.

- **Reassembly**

1. Place the relay gear drive lever in the unloading state.
2. Place the relay shifter so that it is in contact with the reverse guide spring hole in the mechanism chassis. Release the slow brake lever with a finger to bring it away from the capstan (in the direction of arrow). Then place the master cam so that the D cut-off part of the master cam faces the direction of arrow.
3. Place the half- loading recipro lever's cam follower so that it fits in the master cam's circumferential cam groove (marked with arrow), attach the E ring, then mount the half- loading recipro lever.
4. Turn the master cam somewhat clockwise until the pinch roller lever's cam follower goes into the master cam's groove (marked with arrow). Mount the pinch roller lever and then attach the E ring.
5. Rotate the master cam by hand to make sure all the four levers (relay gear drive lever, half-loading recipro lever, pinch roller lever, and relay shifter lever) are in the cam grooves in place.
6. Mount the loading block. (See page 28.)

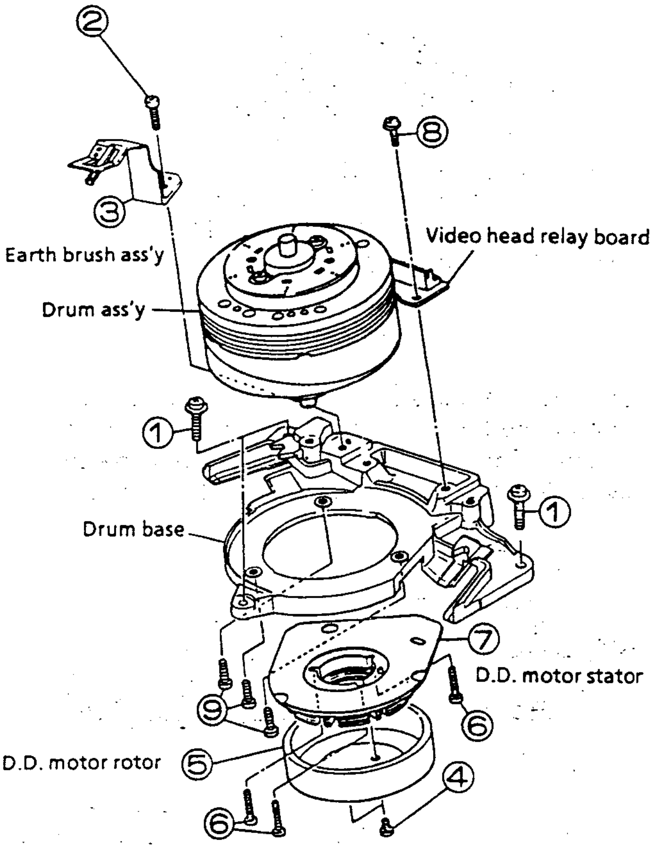
Notes:

1. Be careful not to scratch the teeth and grooves of the master cam.
2. After installation of the master cam, be sure to rotate the master cam by hand before installing the loading block. If the levers are in wrong position, the master cam and the levers may get damaged when the motor stares.
3. Apply specified grease to the master cam's grooves and teeth.

REPLACEMENT OF DRUM ASSEMBLY

- **Removal**

1. Remove the head amp. PWB from the video head relay board.
2. Remove the bottom plate (Ref. No 603 in the Mechanical Parts Diagram).
3. Remove the D.D. drum motor connector (ME).
4. Loosen the drum base mounting screws ① and remove the drum ass'y from the mechanism chassis.
5. Loosen the earth brush ass'y mounting screw ② and remove the earth brush ass'y ③.
6. Loosen the two D.D. motor rotor mounting screws ④ and remove the D.D. motor rotor ⑤.
7. Loosen the three D.D. motor stator mounting screws ⑥ and remove the stator ⑦.
8. Remove the two video head relay board mounting screws ⑧.
9. Loosen the three drum ass'y mounting screws ⑨ and remove the drum ass'y from the drum base.



Note:
Secure the D.D. rotor assembly so that the installation positioning holes in the D.D. rotor assembly and lower drum match.

Figure 1-74.

- **Reassembly**

Notes:

1. Before setting the drum, check that there are no scratches or dust on the edge of the surface and circumference of the disk.
2. Before setting the drum, check that there are no scratches or dust on the internal surface and edge of the surface of the upper drum.
3. On assembling these parts, insert the upper drum onto the disk with care, so that the upper drum is not tilted.
4. When assembling these parts, do not allow dust or dirt come between the disk and the upper drum.
5. Do not use excessive force when driving in the screws.

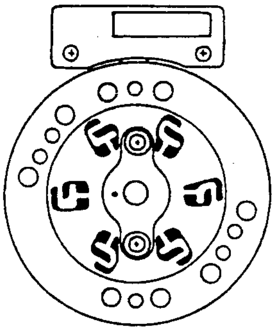


Figure 1-75.

1. Set the new drum.
2. Place the relay PWB as shown in Figure 1-75 and solder it securely.
   Note:
   Soldering should be performed quickly and carefully without touching adjacent patterns.
3. After replacement, be sure to check the tape drive train adjustment (see page 25.) and the following electric adjustments.
   1) Adjustment of the playback switching point.
   2) Checking and adjustment of the X-position.
   3) Adjustment of SP and LP slow tracking preset.

REPLACEMENT OF D.D. MOTOR

1. Put the unit in the cassette eject position.
2. Unplug the power cord.

- **Removal (Reverse the order in reassembly.)**

1. Remove the FFC ①.
2. Remove the two D.D. rotor assembly setscrews ②.
3. Pull out the D.D. rotor ass'y ③.
4. Remove the three D.D. stator setscrews ④.
5. Remove the D.D. stator assembly ⑤.

Notes:

1. When removing the D.D. rotor assembly or D.D. stator assembly, use care not to hit the loading relay gear.
2. Secure the D.D. rotor assembly so that the installation positioning holes in the D.D. rotor assembly and lower drum assembly match.
3. Be careful not to damage the upper drum or the video head.
4. Be sure that the hall device and the D.D. stator assembly are not damaged by the D.D. rotor assembly or other parts.
5. After installation, adjust the playback switching point.

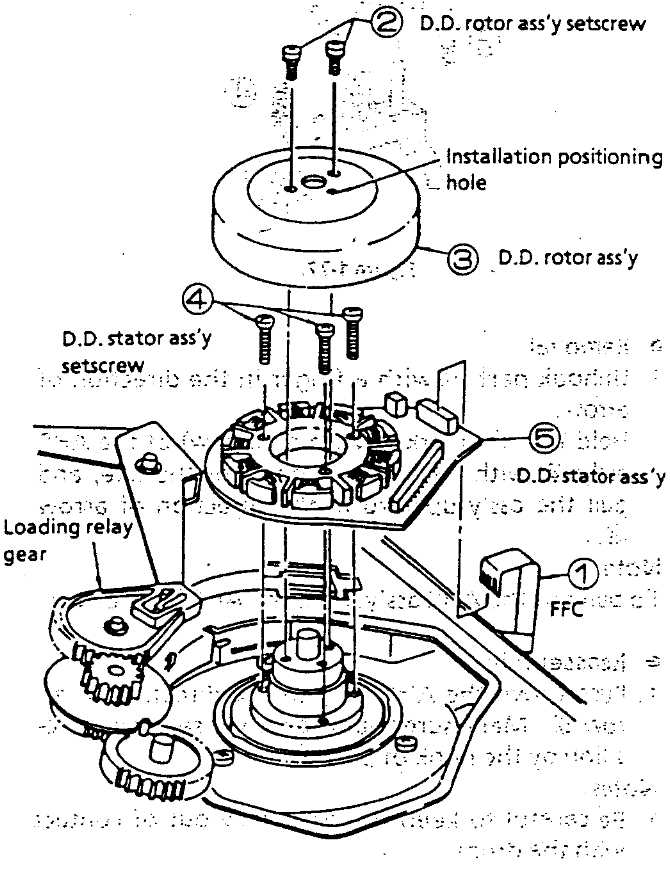

② D.D. rotor ass'y setscrew
Installation positioning hole
③ D.D. rotor ass'y
④
D.D. stator ass'y setscrew
⑤
D.D. stator ass'y
Loading relay gear
① FFC

Figure 1-76.

REPLACING THE AHC (AUTOMATIC HEAD CLEANER)

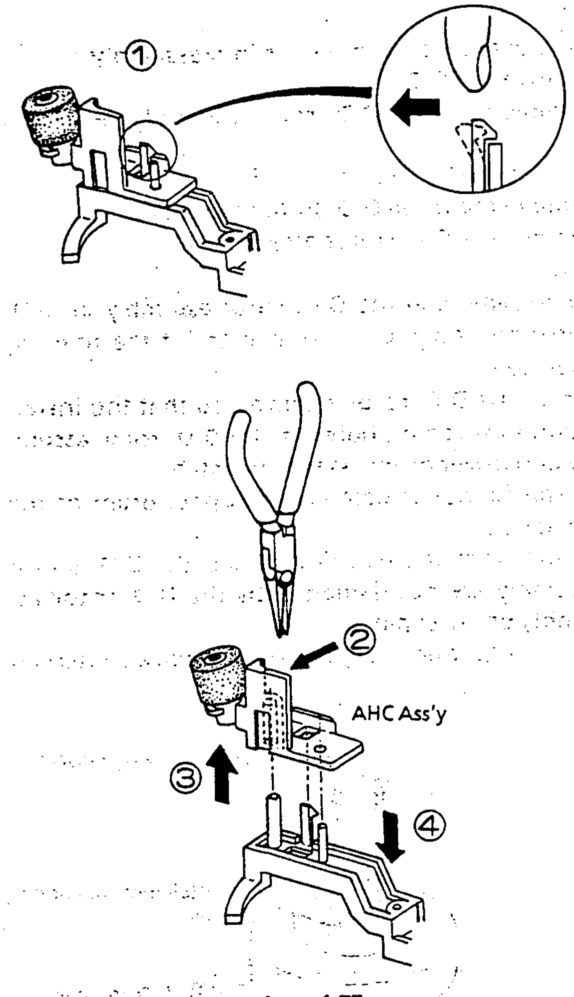


Figure 1-77.

- **Removal**

1. Unhook part ① with a finger in the direction of arrow.
   Hold the rib (marked with an arrow) of the AHC ass'y ② with electrician's pliers or the like, and pull the ass'y upward in the direction of arrow ③.

Note:
To pull out the AHC ass'y, hold the AHC lever down.

- **Reassembly**

1. Push down the AHC ass'y in the direction of arrow ④. Make sure that the ass'y is secured in position by the hook of part ①.

Notes:

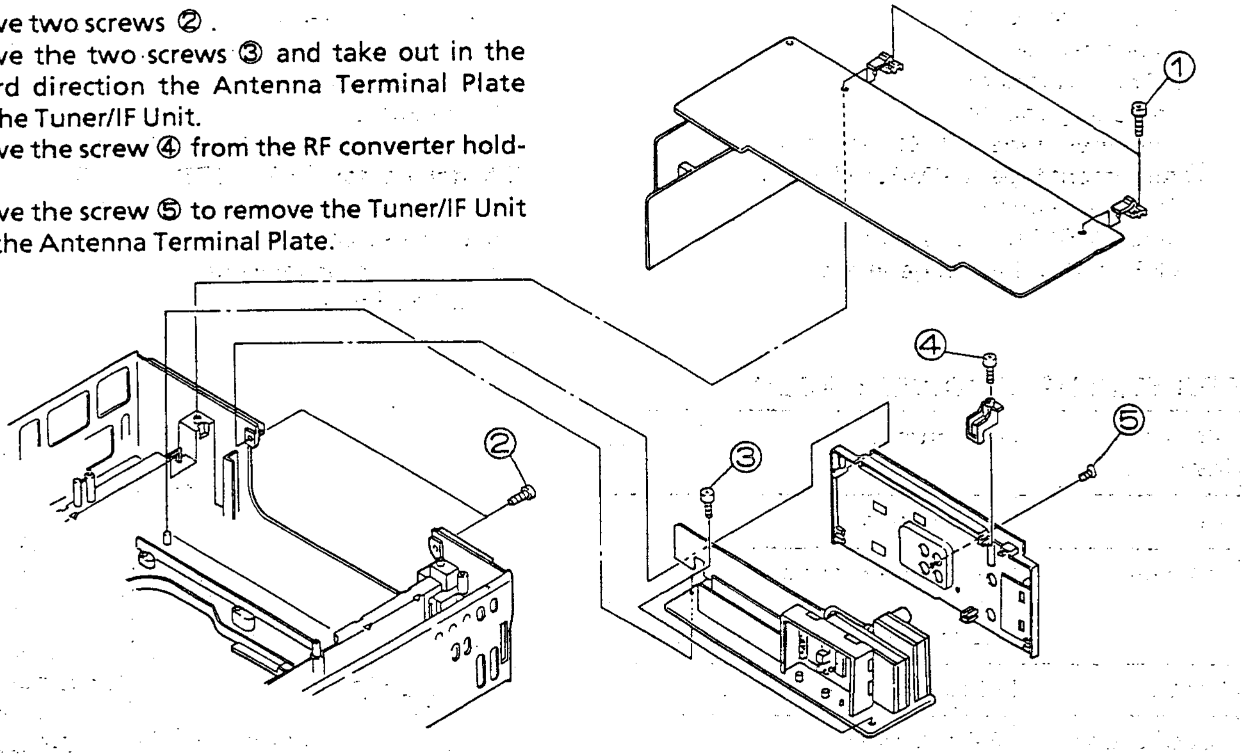
1. Be careful to keep the AHC ass'y out of contact with the drum.
2. Be careful to keep the cleaner section of the ass'y free of grease or contaminants.

ADJUSTMENT OF THE ELECTRICAL CIRCUITRY

■ DISASSEMBLY OF TUNER/IF UNIT AND POWER UNITS

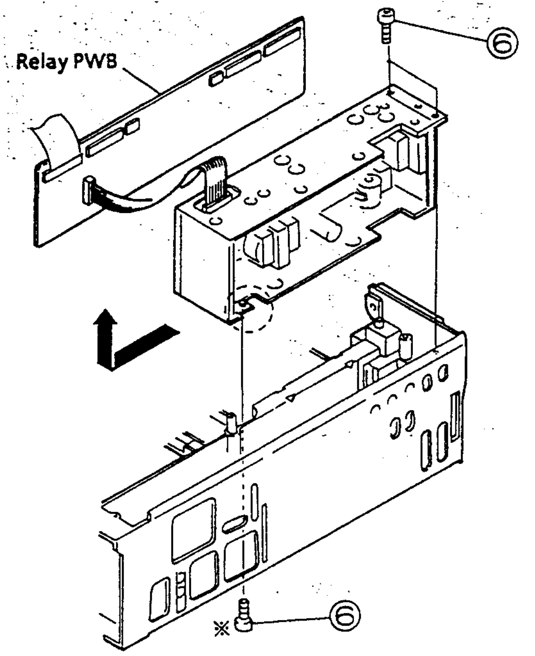
• Tuner/IF Unit

1. Remove two screws ① which fasten the Main PWB.
2. Remove two screws ②.
3. Remove the two screws ③ and take out in the upward direction the Antenna Terminal Plate with the Tuner/IF Unit.
4. Remove the screw ④ from the RF converter holder.
5. Remove the screw ⑤ to remove the Tuner/IF Unit from the Antenna Terminal Plate.



• Power Unit

1. Remove three screws ⑥ which fasten the Power Unit.
2. Lift up the Relay PWB.
3. Slide the Power Unit in the direction of the arrow to uncouple it from the main frame, and remove the Power Unit in the upward direction.

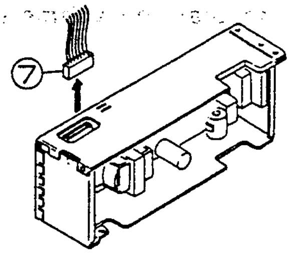


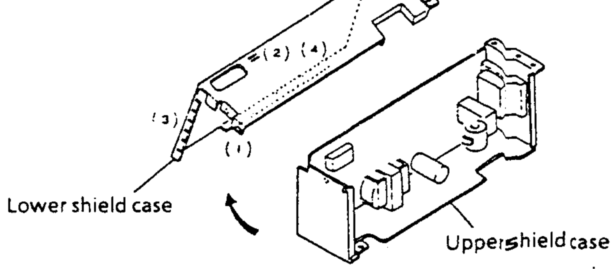
Note:
The screw marked (※) is used to tighten up the bottom plate.

• Power Unit Shield Case

1. Remove the wire lead with Connector PA ⑦.
2. Hold the Upper Shield Case down and remove the Lower one by turning it in the direction of the arrow.

Note:
For easier coupling, fit at locations (1) to (4) in this order.





Notes:

- Before the adjustment:
  Electrical adjustments discussed here are often required after replacement of electronic components and mechanical parts such as video heads.
  Check that the mechanism and all electric components are in good working condition prior to the adjustment, otherwise adjustments can not be completed.

- Instruments required:
  ◎ Colour monitor TV
  ◎ Dual-trace oscilloscope
  ◎ AC milli-voltmeter
  ◎ Frequency counter
  ◎ Alignment tape (VROCPSV) (PAL)
  ◎ Alignment tape (VROATSV) (NTSC)
  ◎ Extension connector
  (QCNW-6443GEZZ : 2 pin)
  ◎VHF band AM signal generator
  ◎ Colour bar generator
  ◎ DC regulated power supply
  ◎ Audio signal generator
  ◎ DC voltmeter
  ◎ Hi-Fi alignment tape (VROCBFFS) (PAL)
  ◎ Alignment tape (VRONBZZS) (NTSC)
  ◎ Alignment tape (VR9EBZCS) (NTSC)
  ◎ Blank video cassette tape
  ◎ Screwdriver for adjustment
  ◎ Field strength meter

ADJUSTMENT OF POWER CIRCUIT

Measuring instrument	DC voltmeter
Mode	Recording mode
Test point	Pin ④ of AP connector and ground (Located on the main module)
Control	R916 adjustment control
Specification	6.6 ± 0.1V DC

1. Put the unit in recording mode and connect a DC voltmeter to pin 4 (+) of AP connector and ground (−).
   (AP connector is located on the main module.)
2. Supply the unit with the rated AC power.
3. Insert a screw driver thru a right side hole on the frame and adjust R916 located on the power module PWB so that the voltmeter reads 6.6 ± 0.1V DC.

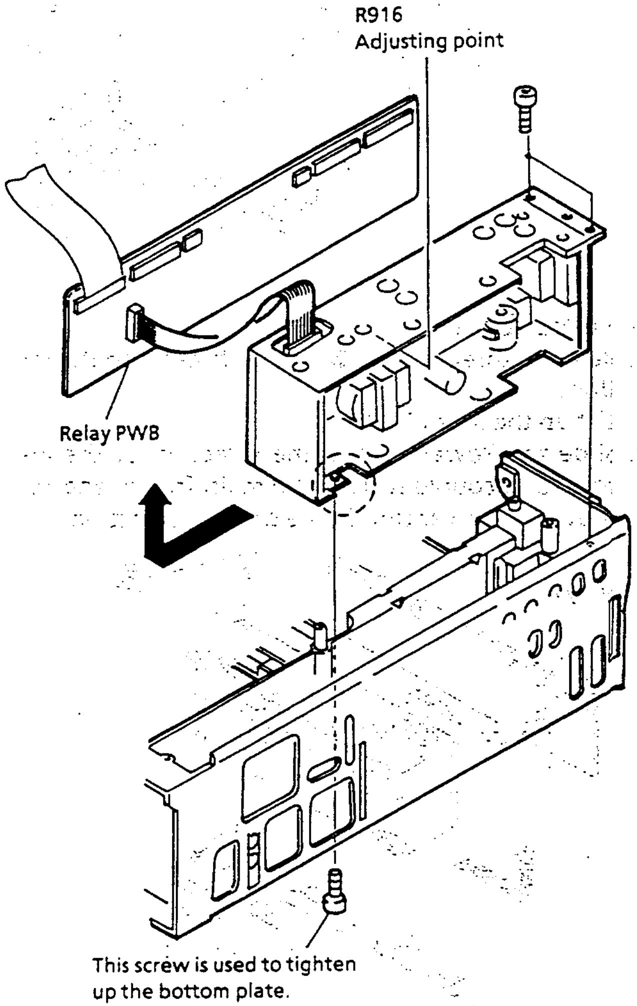


Figure 2-1.

SERVO CIRCUIT ADJUSTMENT

ADJUSTMENT OF PAL SYSTEM PLAYBACK SWITCHING POINT

Measuring instrument	Dual-trace oscilloscope
Mode	Playback (Tracking at center)
Cassette	Alignment tape (VROCPSV)
Test point	CH-1: TP2202 CH-2: Video output terminal (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
Control	R701 PAL phase generator M.M. adjustment control
Specification	6.5 ± 0.5H

1. Remove the front panel.
2. Play the PAL-system alignment tape (VROCPSV) and put the unit in the playback mode.
3. Place the unit to tracking in the center mode. (See Note below.)
4. Connect a dual-trace oscilloscope to the video output terminal and TP2202. (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
5. Adjust R701 so that the leading edge of the head switching pulse is 6.5H (lines) ahead of the vertical sync as shown in Figure 2-2.

Notes:

How to tracking in the center mode. (In the playback mode only.)

① Remove the cassette housing control ass'y.

② Make a short-circuit between jumper pin at TEST26 and TEST27 (Located on the timer module) using a lead wire.

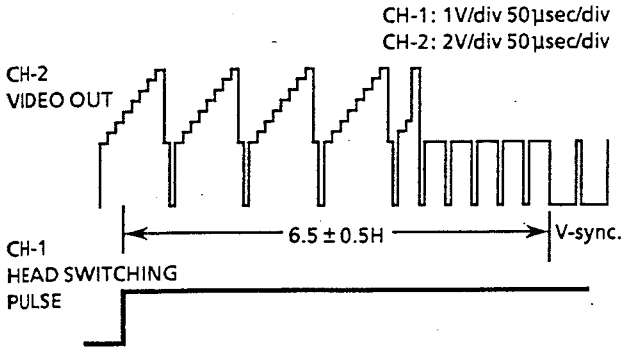


Figure 2-2.

ADJUSTMENT OF PAL SYSTEM SP SLOW TRACKING PRESET

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape (See Note ① below.)
Input signal	Commercial broadcast or video signal (External input selector switch)
Test point	Monitor screen
Control	Tracking control button (+) or (−)
Specification	Minimized noise bar on monitor screen

1. Have the unit to receive a Commercial broadcast signal or feed the video signal to the external video input terminal.
2. Play back the self-recording tape PAL system SP mode.
3. Make a short-circuit between jumper pin at TEST26 and TEST27 using a lead wire so that the test mode. (See Note ② below.)
4. Be sure that all the fluorescent display tube light up and then remove the lead wire.
5. Press the SLOW button on the remote controller, and playback the recorded portion on the slow mode.
6. Look at the monitor screen and adjust the tracking control using the tracking button (+) or (−) on the main unit or the remote controller so that the noise disappears from the screen.
7. Press the STOP button in the slow tracking preset data are memorized.
8. Press the all clear button in the return to normal mode.

Notes:

① Self-recorded tape means a cassette whose program was recorded by the unit being adjusted.

② Jumper pin TEST26 and TEST27 are located on the up side of TA connecter in the timer module.

ADJUSTMENT OF PAL SYSTEM LP SLOW TRACKING PRESET

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape (See Note ① below.)
Input signal	Commercial broadcast or video signal (External input selector switch)
Test point	Monitor screen
Control	Tracking control button (+) or (−)
Specification	Minimized noise bar on monitor screen

1. Have the unit to receive a Commercial broadcast signal or feed the video signal to the external video input terminal.
2. Play back the self-recording tape PAL system LP mode.
3. Make a short-circuit between jumper pin at TEST26 and TEST27 using a lead wire so that the test mode. (See Note ② below.)
4. Be sure that all the fluorescent display tube light up and then remove the lead wire.
5. Press the SLOW button on the remote controller, and playback the recorded portion on the slow mode.
6. Look at the monitor screen, and adjust the tracking control using the tracking button (+) or (−) on the main unit or the remote controller so that the noise disappears from the screen.
7. Press the STOP button in the slow tracking preset data are memorized.
8. Press the all clear button in the return to normal mode.

Notes:

① Self-recorded tape means a cassette whose program was recorded by the unit being adjusted.

② Jumper pin TEST26 and TEST27 are located on the up side of TA connecter in the timer module.

ADJUSTMENT OF PAL SYSTEM PAUSE/ STILL PICTURE VERTICAL SYNC

Measuring instrument	Monitor TV
Mode	Still picture Playback on self-recording tape (See Note below.)
Input signal	Commercial broadcast or video signal (External input selector switch)
Test point	Monitor screen
Control	Tracking control button (+) or (−)
Specification	No vertical jitter of picture

1. Have the unit receive a Commercial broadcast signal or feed the video signal to the external video input terminal.
2. Play back the self-recording tape PAL system SP mode.
3. Press the PAUSE/STILL button on the main unit or the remote controller, and playback the recorded portion in the SP mode.
4. Look at the monitor screen, and adjust the tracking control using the tracking button (+) or (−) on the main unit or the remote controller, make adjustment so that jitter becomes minimum.
5. Press the STOP button in the PAUSE/STILL preset data are memorized.

Notes:

Self-recorded tape means a cassette whose program was recorded by the unit being adjusted.

ADJUSTMENT OF NTSC SYSTEM PLAYBACK SWITCHING POINT

Measuring instrument	Dual-trace oscilloscope
Mode	Playback (Tracking at center)
Cassette	Alignment tape (VROATSV)
Test point	CH-1: TP2202 CH-2: Video output terminal (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
Control	R704 NTSC phase generator M.M. adjustment control
Specification	6.5 ± 0.5H

1. Remove the front panel.
2. Play the NTSC system alignment tape (VROATSV) and put the unit in the playback mode.
3. Place the unit to tracking in the center mode. (See Note below.)
4. Connect a dual-trace oscilloscope to the video output terminal and TP2202. (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
5. Adjust R704 so that the leading edge of the head switching pulse is 6.5H (lines) ahead of the vertical sync. as shown in Figure 2-3.

Notes:

How to tracking in the center mode. (In the playback mode only.)

① Removed the cassette housing control ass'y.

② Make a short-circuit between jumper pin at TEST26 and TEST27 (Located on the timer module) using a lead wire.

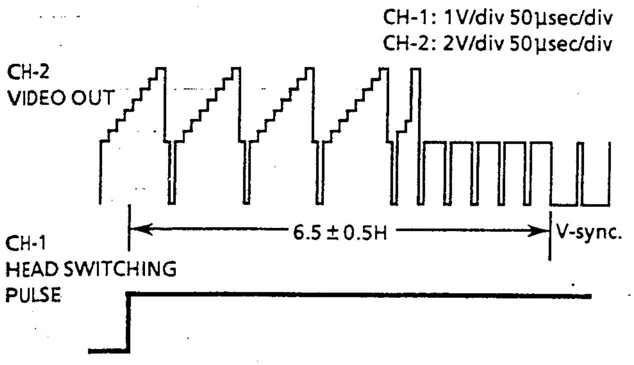


Figure 2-3.

ADJUSTMENT OF NTSC SYSTEM SP SLOW TRACKING PRESET

Measuring instrument	Monitor TV
Mode	Playback (SP mode playback)
Cassette	Alignment tape (VRONBZZS)
Test point	Monitor screen
Control	Tracking control button (+) or (−)
Specification	Minimized noise bar on monitor screen

1. Play back the NTSC system alignment tape (VRONBZZS) and put the unit in the SP portion playback mode.
2. Make a short-circuit between jumper pin at TEST26 and TEST27 using a lead wire so that the test mode. (See Note below.)
3. Be sure that all the fluorescent display tube light up and then remove the lead wire.
4. Press the SLOW button on the remote controller, and playback the recorded portion on the slow mode.
5. Look at the monitor screen, and adjust the tracking control using the tracking button (+) or (−) on the main unit or the remote controller so that the noise disappears from the screen.
6. Press the STOP button in the slow tracking preset data are memorized.
7. Press the all clear button in the return to normal mode.

Note:

Jumper pin TEST26 and TEST27 are located on the up side of TA connecter in the timer module.

ADJUSTMENT OF NTSC SYSTEM EP SLOW TRACKING PRESET

Measuring instrument	Monitor TV
Mode	Playback (EP mode playback)
Cassette	Alignment tape (VR9EBZCS)
Test point	Monitor screen
Control	Tracking control button (+) or (−)
Specification	Minimized noise bar on monitor screen

1. Play back the NTSC system alignment tape (VR9EBZCS) and put the unit in the EP portion playback mode.
2. Make a short-circuit between jumper pin at TEST26 and TEST27 using a lead wire so that the test mode. (See Note below.)
3. Be sure that all the fluorescent display tube light up and then remove the lead wire.
4. Press the SLOW button on the remote controller, and playback the recorded portion on the slow mode.
5. Look at the monitor screen, and adjust the tracking control using the tracking button (+) or (−) on the main unit or the remote controller so that the noise disappears from the screen.
6. Press the STOP button in the slow tracking preset data are memorized.
7. Press the all clear button in the return to normal mode.

Note:
Jumper pin TEST26 and TEST27 are located on the up side of TA connecter in the timer module.

ADJUSTMENT OF NTSC SYSTEM PAUSE/STILL PICTURE VERTICAL SYNC.

Measuring instrument	Monitor TV
Mode	Still picture playback
Cassette	Alignment tape (VRONBZZS)
Test point	Monitor screen
Control	Tracking control button (+) or (−)
Specification	No vertical jitter of picture

1. Play back the NTSC system alignment tape (VRONBZZS) and put the unit in the SP portion playback mode.
2. Press the PAUSE/STILL button on the main unit or the remote controller, and playback the recorded portion in the SP mode.
3. Look at the monitor screen, and adjust the tracking control using the tracking button (+) or (−) on the main unit or the remote controller, make adjustment so that jitter becomes minimum.
4. Press the STOP button in the PAUSE/STILL preset data are memorized.

Note:
Jumper pin TEST26 and TEST27 are located on the up side of TA connecter in the timer module.

- **Location of controls and test points of main module**

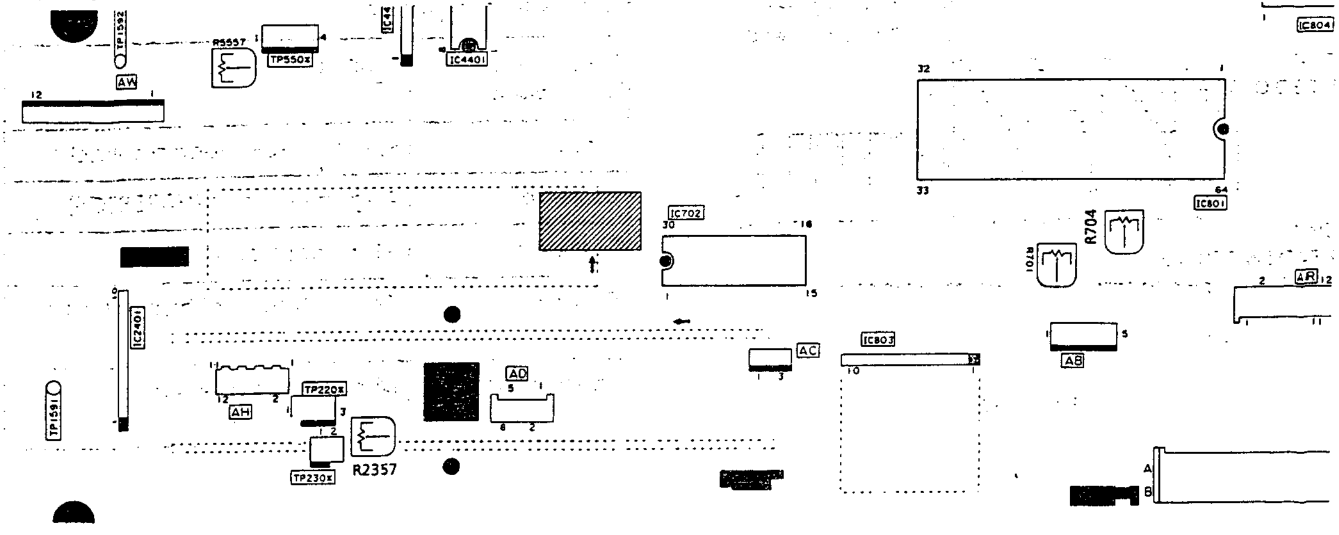


Figure 2-4.

Y/C CIRCUIT ADJUSTMENT

ADJUSTMENT OF VIDEO E-E GAIN

Measuring instrument	Oscilloscope
Mode	Stop or Record (Colour system: PAL)
Input signal	EBU standard colour bar (1.0Vp-p)
Test point	VIDEO OUT jack
Control	R203 E-E level control
Specification	1.0V ± 0.04 Vp-p

1. Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this terminating resistor.
   (See Note ① below.)
2. Feed a colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel AV.
3. Adjust R203 so that the signal amplitude is 1.0Vp-p as shown in Figure 2-5.

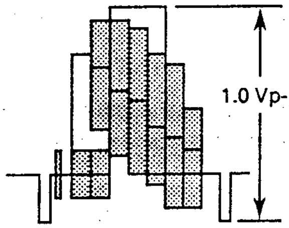


Figure 2-5.

Notes:
① If the 75 ohm terminating resistor is missing, the signal amplitude will be doubled.
② After this adjustment, check the deviation of FM luminance signal.
(R204 Frequency and Deviation adjustment.)

ADJUSTMENT OF PLAYBACK Y-GAIN

Measuring instrument	Oscilloscope
Mode	Playback
Cassette	Alignment tape (VROCPSV)
Test point	VIDEO OUT jack
Control	R201 Playback Y-level control
Specification	1.0 ± 0.04Vp-p

1. Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this terminating resistor.
   (See Note below.)
2. Play the colour bar portion of the alignment tape and adjust R201 so that the signal amplitude is 1.0Vp-p as shown in Figure 2-6.

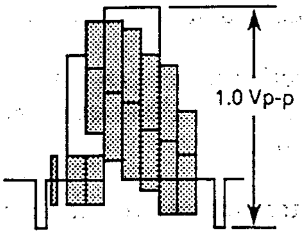


Figure 2-6.

Note:
If the 75 ohm terminating resistor is missing, the signal amplitude will be doubled.

ADJUSTMENT OF FM CARRIER FREQUENCY AND DEVIATION

Measuring instrument	Frequency counter oscilloscope
Mode	Record/Playback (Colour system: PAL)
Input signal	EBU standard colour bar (1.0Vp-p)
Test point	TP203 (pin ㊵ of IC201) VIDEO OUT jack
Controls	R205 FM carrier control R204 Deviation control
Specifications	3.8 ± 0.05 MHz 1.0 ± 0.04 Vp-p

1. Be sure that R203 (E-E level) has been correctly adjusted.
2. Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this terminating resistor.
   (See Note next page.)
3. Connect a frequency counter to test point TP203 ~ ground.
4. Put the unit in A/V input mode by selecting channel AV.
   Do not feed any signal to the VIDEO IN jack.
   (Disconnect any cable from video input terminal.)
5. Under this condition, adjust R205 so that the frequency counter reads 3.8MHz.
6. Feed the colour bar signal to the VIDEO IN jack and adjust R204 so that the frequency counter reads 4.3MHz.
7. Under this condition, record the EBU colour bar signal on tape, rewind and play it.

8. Make sure that the amplitude of the playback colour bar signal is 1.0 ± 0.04 Vp-p as shown in Figure 2-7.
   If the level is below specified value turn R204 clockwise.
   If above specified value, turn it counter clockwise.
   Now make self-recording and playback again.
9. Repeat from 7 thru 8 the signal level comes to specified value.

Note:
If the 75 ohm terminating resistor is missing, the signal amplitude will be doubled.

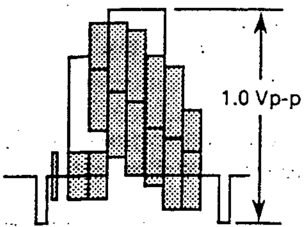


Figure 2-7.

ADJUSTMENT OF Y/C RECORD CURRENT

Measuring instrument	Oscilloscope
Mode	Record (LP mode) (colour system: PAL)
Input signal	EBU standard colour bar (1.0Vp-p)
Test point	TP301 (Signal), TP302 (GND)
Controls	R504 Chroma control R208 FM-Y control
Specifications	Chroma (Red): 23 ± 2mVp-p Sync. tip: 83 ± 5mVp-p

1. Feed the colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel AV.
2. Connect an oscilloscope to test points TP301 (Signal) and TP302 (GND) located on the head amp module. (See Note below.)
3. Put the unit in record mode with the tape speed in LP mode (Not in SP mode.)
4. Turn R208 to minimize the FM luminance signal.
5. Adjust R504 so that the amplitude of the red portion is specified as shown in Figure 2-8(a).
6. Adjust R208 so that the amplitude of the sync. tip portion is specified as shown in Figure 2-8(b).
7. Remove the test point extension if used.

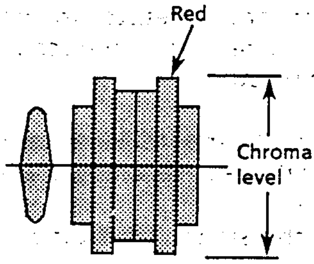


Figure 2-8(a).

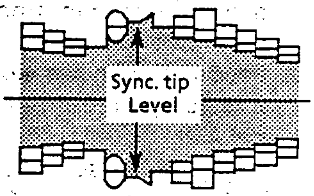


Figure 2-8(b).

Note:
Use QCNW-6443GEZZ for convenient connection of the oscilloscope to these test points.

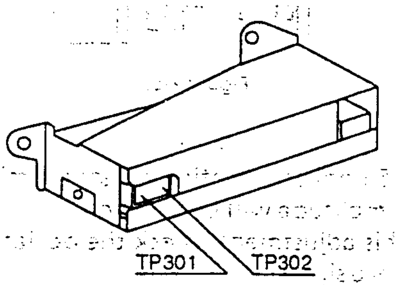

TP301
TP302

Figure 2-9.

- **Location of controls and test points of Y/C module**

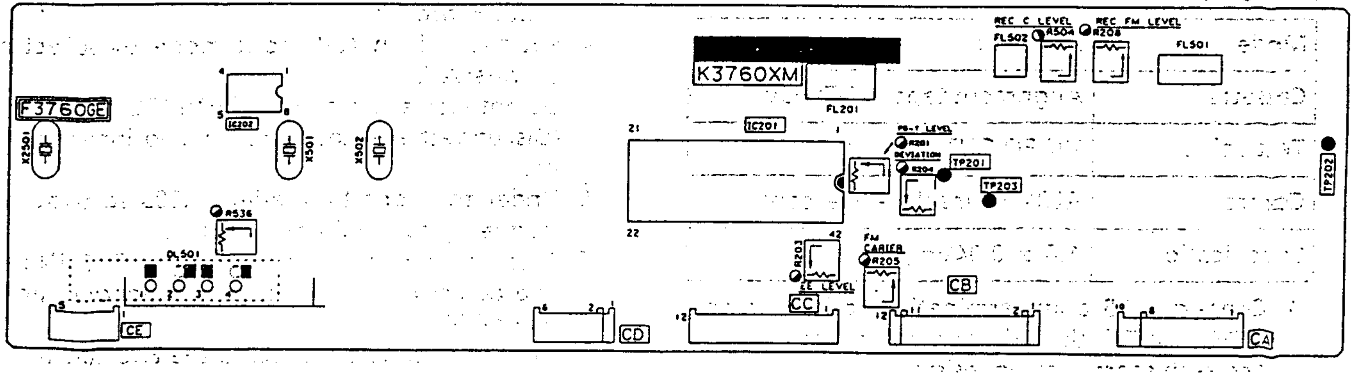

F3760GE
X2501
IC202
X501
X502
R536
FL501
CE
CD
K3760XM
FL201
IC201
REC C LEVEL
FL502
R504
REC FM LEVEL
R208
FL501
PB-Y LEVEL
R201
DEVIATION
R204
TP201
TP203
TP202
R203
EE LEVEL
FM CARIER
R205
CC
CB
CA

Figure 2-10.

SECAM CHROMA CIRCUIT ADJUSTMENT

ADJUSTMENT OF BELL FILTER (VC-H91/H91ETS ONLY)

Measuring instrument	Oscilloscope
Mode	Record (SP mode)
Input signal	EBU standard SECAM colour bar (1.0Vp-p)
Test point	TP5302 (Sig.)~TP5301 (GND)
Control	FL5304 (4.3MHz bell filter)
Specification	————————

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Connect an oscilloscope to test points TP5302 (Sig.) ~TP5301 (GND).
   (Triggered on TP5303.)
3. Put the unit in record mode with the tape speed in SP mode.
   (Not in LP mode.)
4. Adjust FL5304 (4.3MHz bell filter) so that the match with the flat portion of the red and blue as shown in Figure 2-12.

Note:
TP5302 (Sig.) ~ TP5301 (GND) and FL5304 (4.3MHz bell filter) located on the SECAM chroma module.

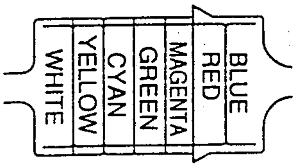


Figure 2-12.

ADJUSTMENT OF RECORD EQUALIZER (VC-H91/H91ETS ONLY)

Measuring instrument	Oscilloscope
Mode	Record (SP mode)
Input signal	EBU standard SECAM colour bar (1.0Vp-p)
Test point	TP5305 (Sig.) ~ TP5301 (GND)
Control	FL5306 (1.1MHz bell filter)
Specification	————————

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Connect an oscilloscope to test points TP5305 (Sig.) ~ TP5301 (GND).
   (Triggered on TP5303.)
3. Put the unit in record mode with the tape speed in SP mode.
   (Not in LP mode.)
4. Adjust FL5306 (1.1MHz bell filter) so that the match with in doubled portion of the magenta as shown in Figure 2-13.

Note:
TP5305 (Sig.) ~ TP5301 (GND) and FL5306 (1.1MHz bell filter) located on the SECAM chroma module.

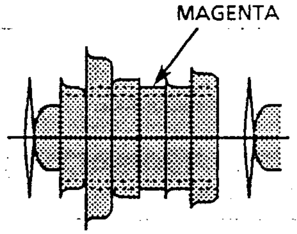


Figure 2-13.

ADJUSTMENT OF SYNC GATE MODE (VC-H91/H91ETS ONLY)

Measuring instrument	Dual-trace oscilloscope
Mode	Record (SP mode)
Input signal	EBU standard SECAM colour bar (1.0Vp-p)
Test point	CH-1··TP5304 (Chroma sig.) ~TP5301 (GND) CH-2··TP5303 (H-sync sig.) ~TP5301 (GND)
Control	R5310 (Sync gate adj-A) R5311 (Sync gate adj-B)
Specification	Gate (A) ··2.0 ± 0.2µsec Gate (B) ··3.8 ± 0.1µsec

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Connect a dual-trace oscilloscope with delayed sweep to test points CH-1··TP5304 (Chroma sig.) ~ TP5301 (GND) and CH-2··TP5303 (H-sync sig.) ~ TP5301 (GND) and make sure that the chroma signal out put is just as shown in Fig 2-14.
3. Put the unit in record mode with the tape speed in SP mode.
   (Not in LP mode.)

4. Adjust R5310 (Sync gate adj-A) and R5311 (Sync gate adj-B) so that the intervals A and B in the waveform of the output at TP5304 (Chroma sig.) and those in the TP5303 (H-sync sig.) waveform should be corresponding to each other.

Note:
TP5304 (Chroma sig.), TP5303 (H-sync sig.)TP5301 (GND), R5310 (Sync gate adj-A) and R5311 (Sync gate adj-B) located on the SECAM chroma module.

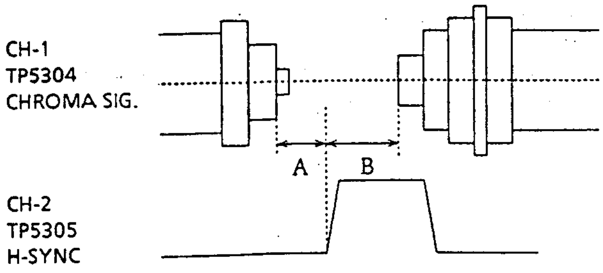

CH-1
TP5304
CHROMA SIG.
A
B
CH-2
TP5305
H-SYNC

Figure 2-14.

ADJUSTMENT OF PLAYBACK EQUALIZER (VC-H91/H91ETS ONLY)

Measuring instrument	Oscilloscope
Mode	Playback mode
Cassette	Alignment tape (VROCSSV)
Test point	TP5304 (Sig.) ~ TP5301 (GND)
Control	FL5303 (1.1MHz PB bell filter)
Specification	————————

1. Connect an oscilloscope to test points TP5304 (Sig.) ~ TP5301 (GND).
2. Play the SECAM colour bar portion of the alignment tape (VROCSSV).
3. Adjust FL5303 (1.1MHz playback bell filter) so that the match with the flat portion of the red and blue as shown in Figure 2-15.

Note:
TP5304 (Sig.) ~ TP5301 (GND) and FL5303 (1.1MHz PB bell filter) located on the SECAM chroma module.

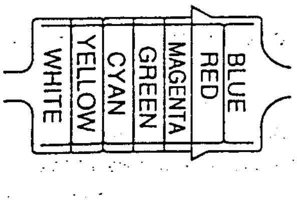

WHITE
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE

Figure 2-15.

ADJUSTMENT OF RECORD CURRENT (SECAM) (VC-H91/H91ETS ONLY)

Measuring instrument	Oscilloscope
Mode	Record (SP or LP mode)
Input signal	EBU standard SECAM colour bar (1.0Vp-p)
Test point	TP301 (Sig.) ~ TP302 (GND)
Control	R5348 (REC-C. ADJ.)
Specification	23 ± 1mVp-p (When the LP mode)

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Connect an oscilloscope to test points TP301 (Sig.) ~ TP302 (GND).
   TP301 (Sig.) ~ TP302 (GND) located on the head amplifier module.
3. Put the unit in record mode with the tape speed in SP or LP mode.
4. Short between TP203 and ground with a 47µF/16V electrolytic capacitor at minimize the FM luminance signal.
5. Adjustment R5348 (REC-C.) so that the amplitude of the cyan portion is 23 ± 1mVp-p (When the LP mode) as shown in Figure 2-16.

Note:
R5348 (REC-C. ADJ.) located on the SECAM chroma module.

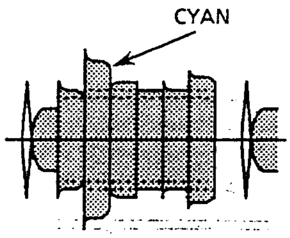


Figure 2-16.

- **Location of controls and test points of SECAM CHROMA module**

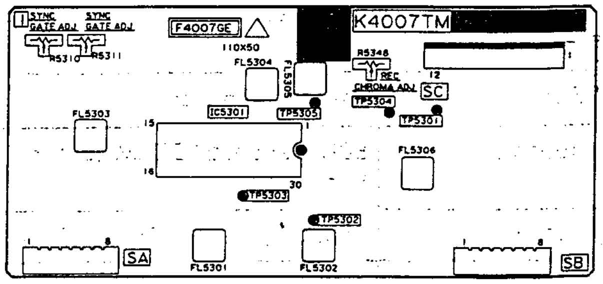

SYNC GATE ADJ
SYNC GATE ADJ
R5310
R5311
F4007GE
110X50
FL5304
FL5305
K4007TM
R5348
REC CHROMA ADJ
12
SC
TP5304
TP5301
FL5303
IC5301
TP5305
15
1
16
30
FL5306
TP5303
TP5302
1
8
SA
FL5301
FL5302
1
8
SB

Figure 2-17.

NTSC → PAL CONVERSION/AI/IF CIRCUIT ADJUSTMENT

ADJUSTMENT OF NTSC → PAL CONVERSION CIRCUIT

Measuring instrument	Frequency counter
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	TP5502 (Signal), TP5501 (GND)
Control	R5557 VCO control
Specification	15735 ± 20Hz

1. Play back the alignment tape (VROATSV).
   Set the colour mode switch to "AUTO" position.
2. Make a short-circuit between TP5504 (pin (15) of IC5501) and TP5503 (PC5V) using a lead with clip.
3. Connect a frequency counter to test points TP5502 (Signal), TP5501 (GND).
   Adjust R5557 so that the counter reads the value below.
   (Specification: 15735 ± 20Hz.)
   (A free-run state is brought in the step 2 above, however a pull-in of ± 30Hz or so still caused.)
4. Disconnect the clip-fitted lead and make sure that the image is reproduced in colours in the PAL mode. (With a PAL CTV or a multi-system CTV in the PAL mode.)

ADJUSTMENT OF AUTO PICTURE CIRCUIT

Measuring instrument	DC voltmeter
Mode	Record and playback on selfrecording tape at SP mode (Colour system PAL)
Input signal	EBU standard colour bar signal
Test point	TP2301 (Signal), TP2302 (GND)
Control	R2357 Picture control
Specification	2.6 ± 0.1V DC

1. Be sure that the Y/C record current (R208, R504) has been correctly adjusted.
2. Set the auto picture switch to "ON" or "AUTO PICTURE" position and picture tone volume in center.
3. Connect the DC voltmeter to test points TP2301 (+) and TP2302 (−). Adjust R2357 so that the DC voltmeter reads 2.6 ± 0.1V DC.

NTSC SKEW ADJUSTMENT

ADJUSTMENT OF NTSC SKEW COMPENSATION

Measuring instrument	Dual-trace oscilloscope and monitor TV
Mode	Playback (SP still mode)
Cassette	Alignment tape (VROATSV)
Test point	CH-1··TP2202 (Head switching pulse) CH-2··Video output terminal
Control	R4411 (NTSC skew adj.)
Specification	No flicker on the monitor TV screen

1. Insert the alignment tape (VROATSV) and place the unit to the playback still mode.
2. Connect a dual-trace oscilloscope to test points CH-1: TP2202 (Head switching pulse.) and CH-2··Video output terminal.
3. Observe the output of TP2202 (head switching pulse) and video output terminal with an oscilloscope.
4. Adjust R4411 (NTSC skew adj.) so that there is a video level difference of ± 0.1V between CH-1 output (head switching pulse's High level) and CH-2 output (head switching pulse's Low level).
5. If the colour flicker is so noticeable on the TV monitor, finely adjust R4411 so that there is the least deviation of flicker on the screen.

Note: TP2202 (Head switching pulse) and R4411 (NTSC skew adj.) located on the main module.

- **Location of controls and test points of main module**

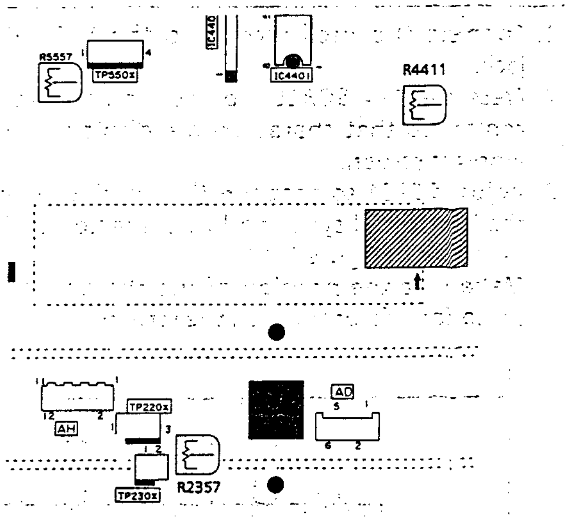


Figure 2-18.

OSD CIRCUIT ADJUSTMENT

ADJUSTMENT OF OSD AFC

Measuring instrument	Frequency counter
Mode	Blue background
Test point	TP5901 (signal), TP5903 (GND)
Control	R5912 AFC control
Specification	15.625 ± 0.2kHz

1. Connect the frequency counter to test points TP5901 (signal) and TP5903 (GND) located on the terminal module.
2. Press the ON SCREEN button on the remote control so that characters are displayed.
3. Apply 5V DC to TP5902 via a 1k ohm resistor. (Or have the unit receive an unoccupied TV channel.)
4. Adjust R5912 so that the frequency counter reads 15.625kHz.
5. Remove the 1k ohm resistor (or have the unit an occupied channel) and make sure that the character display has no jitter or distortion when it is displayed on a TV picture (not on the blue background).

ADJUSTMENT OF OSD HORIZONTAL SIZE

Measuring instrument	Oscilloscope and monitor TV
Mode	On screen display
Test point	VIDEO OUT jack
Control	C5901 Charactor position control
Specification	56 ± 1µsec

1. Connect the oscilloscope to the VIDEO OUT jack.
2. Press the ON SCREEN button on the remote control so that characters are displayed on the monitor screen.
3. Adjust C5901 so that the time period between the horizontal sync and last character is 56µsec as shown in Figure 2-19.
4. Make sure the position of the characters is not set to far left or right on the screen.

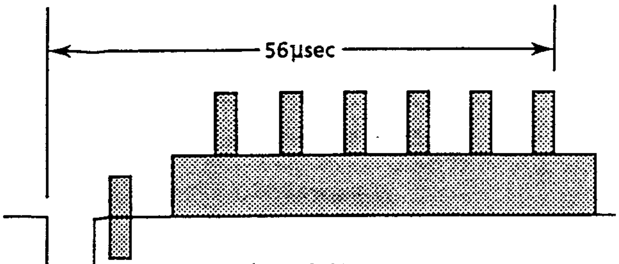


Figure 2-19.

- **Location of controls and test points of terminal module**

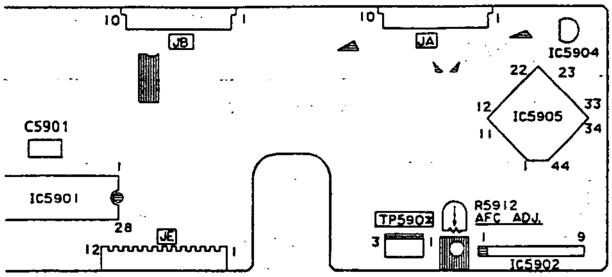


Figure 2-20.

ADJUSTMENT OF AFT CIRCUIT

Measuring instrument	Oscilloscope VHF band AM signal generator
Mode	Good TV commercial broadcast reception
Input signal	PIF frequency uniwave signal
Test point	Pin ⑧ of IC1501 (Video output signal) Pin ⑤ of IC1501 (GND) Located on the tuner/IF module.
Control	AFT coil control
Specification	———————

1. Have the unit received good TV commercial broadcast reception. (Input field strength: 70 dBµV of antenna terminal)
2. Using the VHF band AM signal generator, feed the PIF frequency (Figure 2-21) signal (sinewave) to the tuner/IF output terminal.
3. Connect an oscilloscope to pin ⑧ of IC1501 (Video output signal) and Pin ⑤ of IC1501 (GND).
4. Set the CHANNEL SET switch or button to the VHF or UHF position. Keep the tuning button (+) or (−) depressed until the desired broadcast channel comes in clearly on your TV, and beating on the oscilloscope screen be minimum. Set the CHANNEL SET switch or button on the set position.
5. Turn the core of the AFT coil for adjustment so that the beating on the oscilloscope screen becomes minimum. (The AFT coil is located on the IF unit.)

PIF Frequency table

Version	Frequency
VC-H91/H91ETS VC-H96/H96ETS VC-H980/H980ETS	38.9MHz

Figure 2-21.

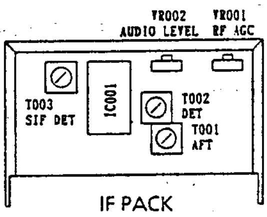

VR002
AUDIO LEVEL
VR001
RF AGC
T003
SIF DET
IC001
T002
DET
T001
AFT
IF PACK

Figure 2-22.

ADJUSTMENT OF RF AGC CIRCUIT

Measuring instrument	Oscilloscope
Mode	Good TV commercial broadcast reception (Split field colour bar signal)
Test point	Pin ⑧ of IC1501 (Video output signal) Pin ⑤ of IC1501 (GND) Located on the tuner/IF module
Control	VR001 AGC control
Specification	Just before shrinking (See Figure 2-23)

1. Have the unit received good TV commercial broadcast reception.
   (Input field strength: 80 dBµV of antenna terminal)
2. Connect an oscilloscope to pin ⑧ of IC1501 (Signal) and pin ⑤ of IC1501 (GND).
3. Observe the video output terminal waveform on the oscilloscope.
   Adjust VR001 (AGC control) in the IF pack unit the noise disappears from the oscilloscope screen and the waveform nearly comes into sync.

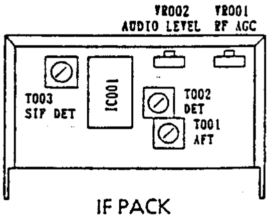

VR002
AUDIO LEVEL
VR001
RF AGC
T003
SIF DET
IC001
T002
DET
T001
AFT
IF PACK

Figure 2-23.

ADJUSTMENT OF AUDIO LEVEL

Measuring instrument	AC milli-voltmeter
Input signal	RF signal (at voice signal to 1kHz ± 50Hz deviation and the modulation factor to 100%)
Test point	Emitter of Q1509 ~ GND Located on the TUNER/IF module
Control	VR002 AUDIO LEVEL control
Specification	− 13 ± 2dBs

1. Receive the good RF signal reception of antenna terminal.
2. Connect a AC milli-voltmeter to Emitter of Q1509 and GND.
3. Adjustment VR002 (AUDIO LEVEL control) so that the milli-voltmeter reads − 13dBs.

- Location of controls and test points of TUNER/IF module

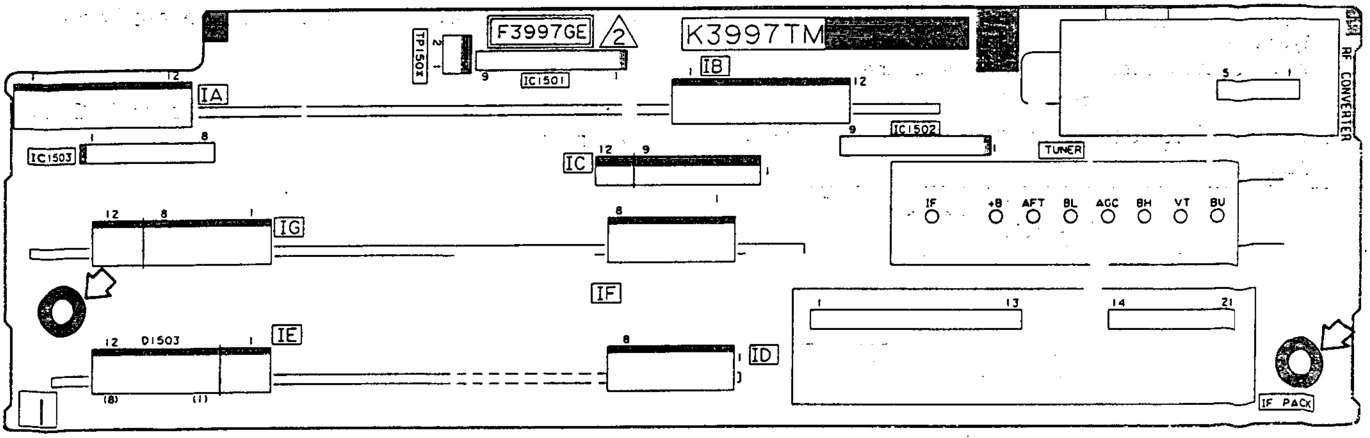

F3997GE
2
K3997TM
TP150X
IC1501
IA
IB
IC1502
IC1503
IC
IG
IF
IE
D1503
ID
TUNER
RF CONVERTER
IF
+B
AFT
BL
AGC
BH
VT
BU
IF PACK

Figure 2-24.

NICAM CIRCUIT ADJUSTMENT

ADJUSTMENT OF NICAM DET. CIRCUIT (VC-H96//H96ETS/H980/H980ETS ONLY)

Measuring instrument	Dual-trace oscilloscope
Input signal	Good TV commercial broadcast reception (RF NICAM Signal)
Mode	E-E (B/G, I or Dual mode)
Test point	TP1703 (CH-B), TP1702 (CH-A), TP1701 (GND)
Control	T1601 eye patterncontrol Located on the SIF/MPX module
Specification	See of Figure2-25

1. Have the unit received good TV commercial broadcast reception and make sure the TV picture on the monitor screen is nice with good colour without beat pattern is clear.
2. Connect a dual-trace oscilloscope with X-Y mode to test points TP1703 (CH-B) ~ TP1701 (GND) and TP1702 (CH-A) ~ TP1701 (GND).
3. Using X-Y mode, observe the waveform of the eye pattern.
4. Adjust T1601 (eye pattern control) in the SIF/MPX module until the noise disappears from the dual-trace oscilloscope screen.

Note:

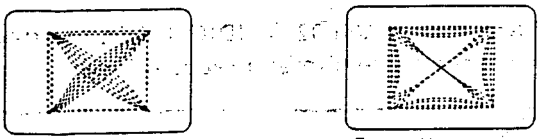
If the not of best points S/N.

① When the B.G mode.

Adjust T1601 (eye pattern control) in the SIF/MPX module so that the out side until the center where moving circle portion on the dual-trace oscilloscope screen.

② When the I mode.

Adjust T1601 (eye pattern control) in the SIF/MPX module so that thin until the center where crossing portion of line on the dual-trace oscilloscope screen be minimum.



Eye pattern
When the B/G mode.

Eye pattern
When the I mode.

Figure 2-25.

- **Location of controls and test points of SIF/MPX module**

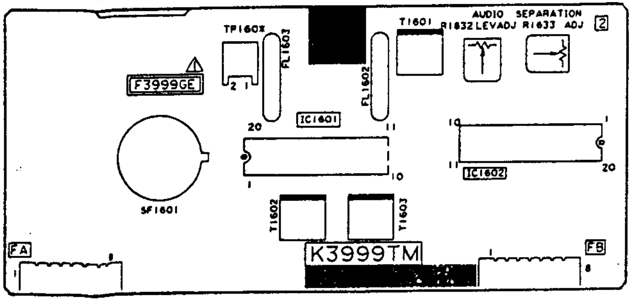

AUDIO LEVADJ
SEPARATION ADJ
T1601
R1632
R1633
2
TP160X
FL1603
FL1602
F3999GE
2
1
IC1601
20
11
1
10
10
1
11
20
IC1602
SF1601
T1602
T1603
FA
FB
K3999TM
1
8
1
8

Figure 2-26.

ADJUSTMENT OF VCXO CIRCUIT (VC-H96/H96ETS/H980/H980ETS ONLY)

Measuring instrument	Frequency counter
Input signal	No signal (Disconnect the antenna)
Mode	E-E (B/G, I or Dual mode)
Test point	Pin (9) of IC1701 (Signal), TP1701 (GND)
Control	R1723 VCXO control (When the B/G mode) R1724 VCXO control (When the I mode) Located on the NICAM module
Specifications	5.850MHz ± 1kHz (When the B/G mode) 6.552MHz ± 1kHz (When the I mode)

1. Do not feed any signal to the RF antenna terminal.
   (Disconnect the antenna.)
2. Connect instrument as shown below.
   (1) AT 5V line
   (2) Pin ⑧ of IC1701 (R1725 and R1726 crossing points.)
   (3) Counter input
   (4) GND

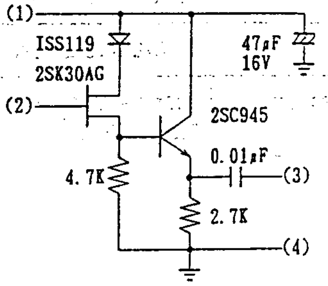

(1)
ISS119
2SK30AG
(2)
47μF
16V
2SC945
0.01μF
(3)
4.7K
2.7K
(4)

Figure 2-27.

3. Adjust slowly turn the R1723 and R1724 so that the frequency counter reads of specified.

Note:

B/G, I mode selector switch S5903 is located on the rear panel side.

- **Location of controls and test points of NICAM module**

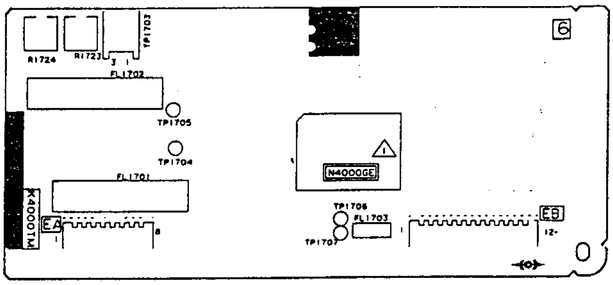

R1724
R1723
3
1
TP1703
6
FL1702
TP1705
TP1704
FL1701
N4000GE
K4000TM
EA
1
8
TP1706
FL1703
TP1707
1
EB
12

Figure 2-28.

Hi-Fi AUDIO CIRCUIT ADJUSTMENT

IMPORTANT NOTES NO Hi-Fi SECTION

1. Instead of potentiometers, fixed-value resistors may be used in the Hi-Fi audio circuit.
   In case adjustments are required, please replace the fixed-value resistors with a trimmer resistor as shown Figure 2-29.
   Parts code of the trimmer resistor is shown in the table of each adjustment procedure.

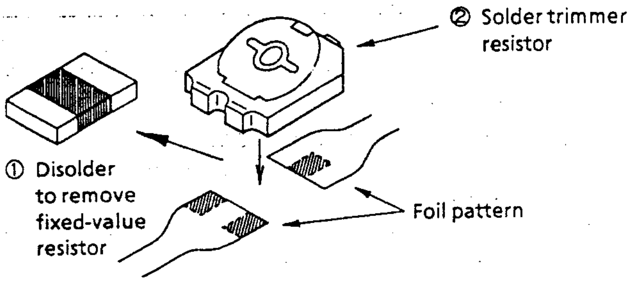

② Solder trimmer resistor
① Disolder to remove fixed-value resistor
Foil pattern

Figure 2-29.

2. Though adjustment procedures are written for the left channel, those for the right channel are basically the same.
   Words shown in the bracket "(   )" are for the right channel only.
3. SERVICING OF THE Hi-Fi MODULE
   1) "RECORD MODE"
      Record a stereo broadcast on tape and adjust control.
   2) "PLAYBACK MODE"
      Play a Hi-Fi tape and adjust control.
      (In case the Hi-Fi sound will not come out, manually adjust the tracking by pressing the (+) or (−) button so that the "L" and "R" indicators light up on the display and the head switching noise disappears.)

- **Location of controls and test points of Hi-Fi module**

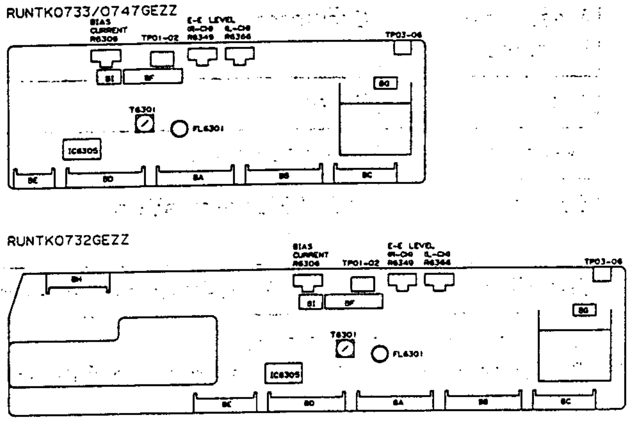


Figure 2-30.

ADJUSTMENT OF E-E GAIN

Measuring instrument	AC milli-voltmeter
Mode	E-E (PAL)
Input signal	1kHz, −8dBs (at RCA Jack)
Test point	AUDIO OUT Jack
Control	R6366A (R6349A) E-E gain control
Specification	−8 ± 1dBs (at RCA Jack)

1. Select channel "AV" to put the unit in A/V input mode and feed the audio signal shown in table to the left channel of AUDIO IN Jack.
2. Connect an AC milli-voltmeter to the left channel of AUDIO OUT Jack and right one.
3. Set the ATT. switch to "OFF" position.
4. Adjust R6366 [R6349] so that the milli-voltmeter read −8dBs.

ADJUSTMENT OF FM CARRIER FREQUENCY

Adjusting method:
If any of the trimming resistor is removed, replace the R6370 (R6367) and R6371 (R6368) with the substitute adjusting control RVR-M4772GEZZ (10k ohm) respectively now make adjustment.

Measuring instrument	Frequency counter
Mode	Recording
Input signal	Not required
Test point	TP6304 (Signal), TP6306 (GND)
Controls	R6370 (R6367) NTSC FM carrier control R6371 (R6368) PAL FM carrier control Substitute parts code: RVR-M4772GEZZ (10k ohm)
Specification	1.3 (1.7) MHz ±.5kHz (When the NTSC mode) 1.4 (1.8) MHz ± 5kHz (When the PAL mode)

1. Select channel "AV" to put the unit in A/V input mode. But feed no signal.
2. Put the unit in recording mode and connect a frequency counter to TP6304 (Signal) to TP6306 (GND).
3. Adjust the trimmer resistor installed R6370 (R6367) (NTSC FM carrier control) so that the counter read 1.3 (1.7) MHz.
4. Next the adjust R6371 (R6368) (PAL FM carrier control) so that the counter read 1.4 (1.8) MHz.
5. Adjusted make sure that the frequency reads be specified.

CHECKING OF AUDIO HEAD SWITCHING POINT

Measuring instrument	Dual-trace oscilloscope
Mode	Playback
Cassette	Alignment tape (VROCBFFS)
Test point	TP6305 (Signal) ~TP6306 (GND) (Audio head switching pulse)
	TP6303 (Signal) ~TP6306 (GND) (Playback envelope)
Specification	More that 100μsec

1. Connect a dual-trace oscilloscope with delayed sweep to test points TP6305 (Signal) ~ TP6306 (GND) (Audio head switching pulse) and TP6303 (Signal) ~ TP6306 (GND) (Playback envelope).
2. Play the alignment tape (VROCBFFS).
3. Using delayed sweep, observe the waveform around the timing of leading edge and trailing edge of the audio head switching pulse.
4. Make sure that the envelope on test points TP6303 (Signal) ~ TP6306 (GND) is at least 100μsec wider than the audio head switching pulse at both edges as shown in Figure 2-31.
   If it is out of specified value, verify the HEAD SWITCHING POINT adjustment (Servo adjustment circuit) and the tape path adjustment.

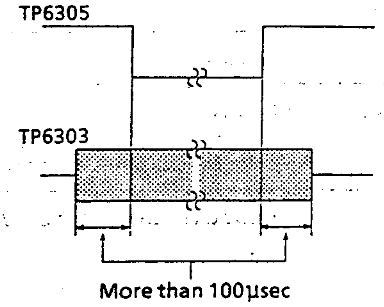


Figure 2-31.

CHECKING OF LINEAR AUDIO PLAYBACK LEVEL

Measuring instrument	AC milli-voltmeter
Mode	Playback
Input signal	Alignment tape (VROCPSV) (1kHz level control signal)
Test point	AUDIO OUT jack
Specification	– 12 ± 2dBs (at RCA Jack)

1. Play back the alignment tape. (VROCPSV 1kHz level control signal)
2. Connect an AC milli-voltmeter to the AUDIO OUT jack.
3. Make sure that the output level is – 12 ± 2dBs (at RCA Jack).

ADJUSTMENT OF LINEAR AUDIO BIAS CURRENT

Measuring instrument	AC milli-voltmeter
Mode	Record (PAL)
Input signal	Not required
Test point	TP6301 (+) ~ TP6302 (–)
Control	R6306 Bias current control
Specification	2.2 ± 0.1mVrms

1. Connect the AC milli-voltmeter to test points TP6301 (+) and TP6302 (–). (Use TP6302 for ground lead.)
2. Set the unit in recording mode.
3. Adjust R6306 so that the bias current is 2.2 ± 0.1mVrms.
4. Record and play a TV program and make sure the audio is not distorted.

CHECKING OF LINEAR AUDIO BIAS LEAK

Measuring instrument	AC milli-voltmeter or oscilloscope
Mode	Record
Input signal	Not required
Test point	AUDIO OUT jack
Control	————————
Specification	Below – 20dBs or 220mVp-p

1. Select channel "AV" to in A/V input mode and put the unit in record mode. Do not feed any signal to AUDIO IN jack
2. Connect an AC milli-voltmeter or oscilloscope to the AUDIO OUT jack.
3. Make sure the bias leak is below – 20dBs or 220mVp-p.

CHECKING OF ERASE VOLTAGE AND OSCILLATION FREQUENCY

Measuring instrument	Oscilloscope
Mode	Record
Test point	Full erase head
Control	T6301 Bias oscillation transformer
Specification	70 ± 10kHz, 40Vp-p or greater

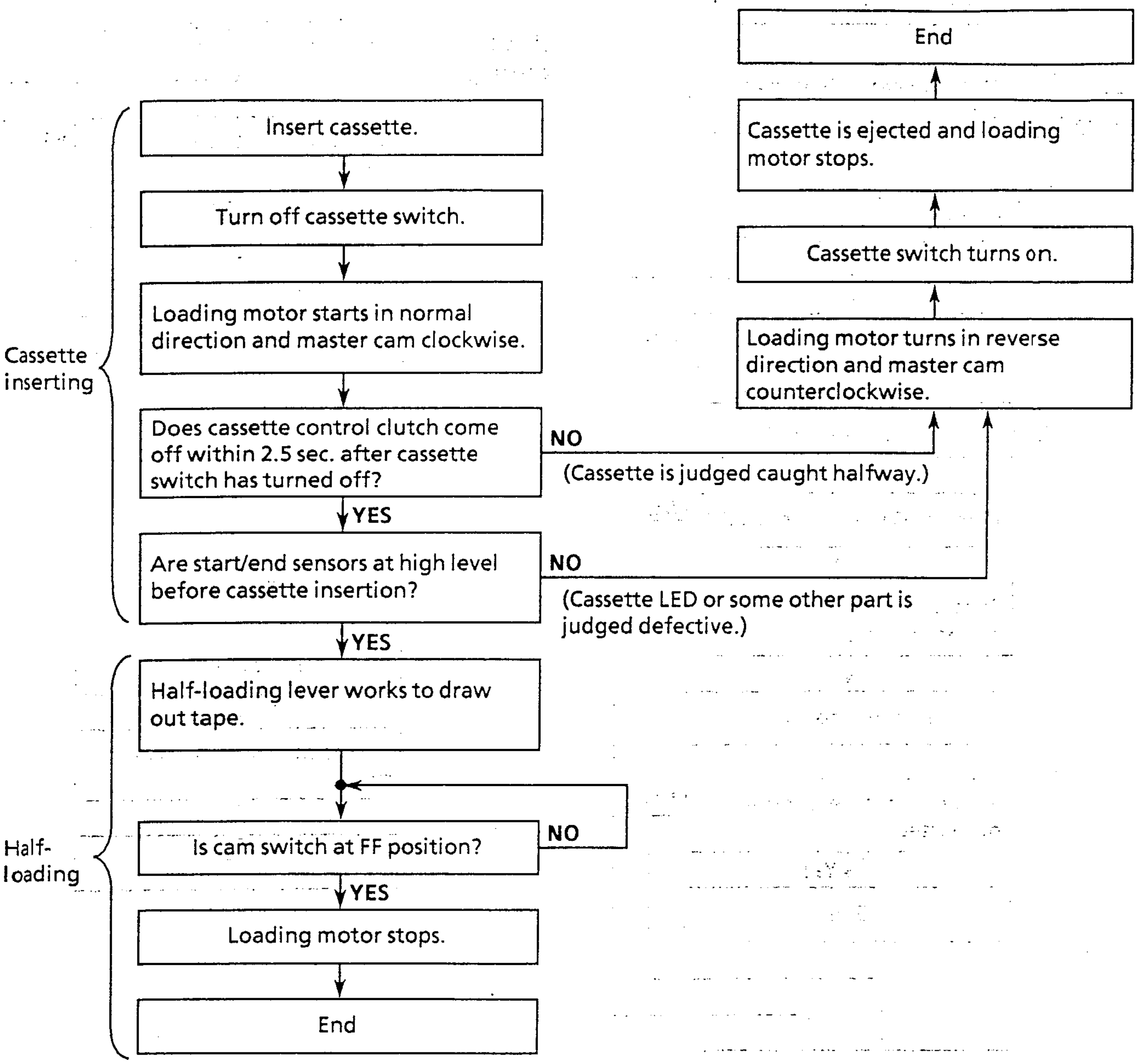
1. Put the unit in record mode.
2. Connect an oscilloscope across the full erase head.
   "(White: signal, Gray: ground)" is correct.
3. Make sure the erase voltage across the full erase head is approx. 40Vp-p or more and frequency is 70 ± 10kHz.

MECHANISM OPERATION FLOW CHART AND TROUBLESHOOTING GUIDE

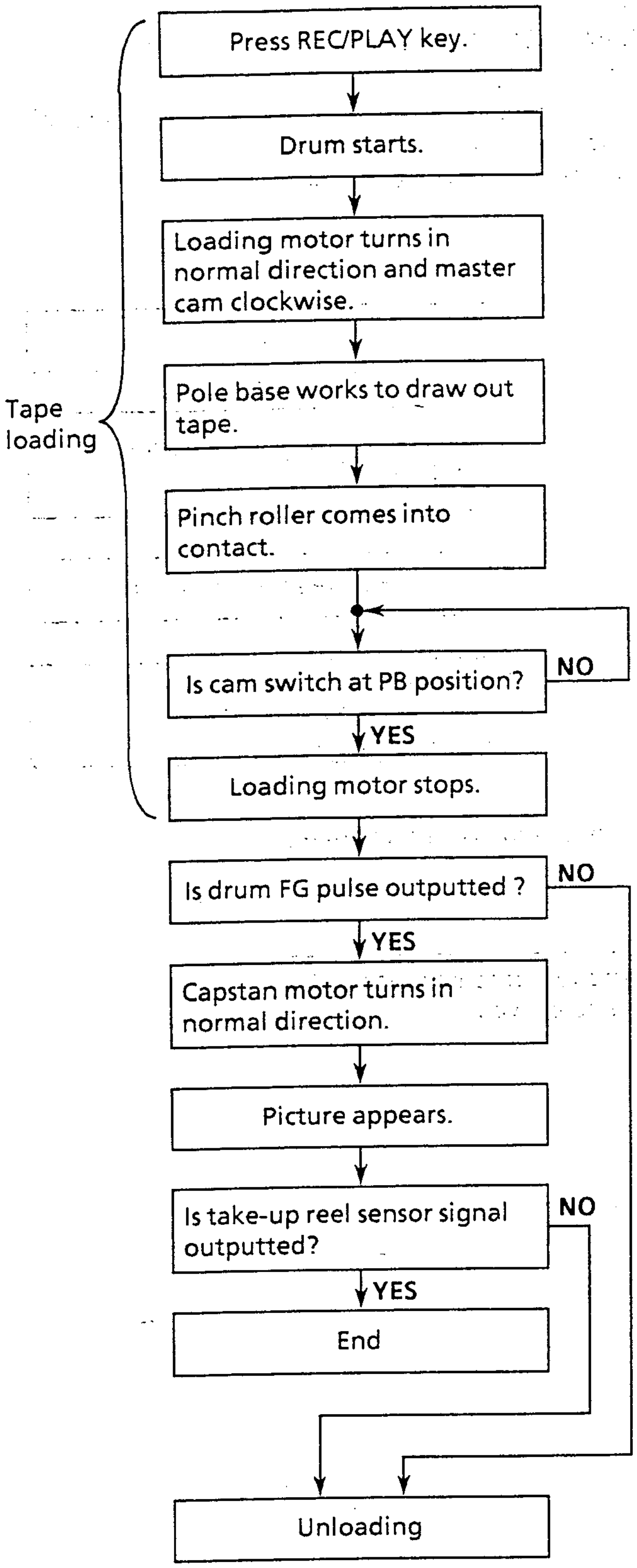
MECHANISM OPERATION FLOW CHART

- * This flow chart describes the outline of the mechanism's operation, but does not give its details.
- * For cam switch positions, see Fig. 3-2.

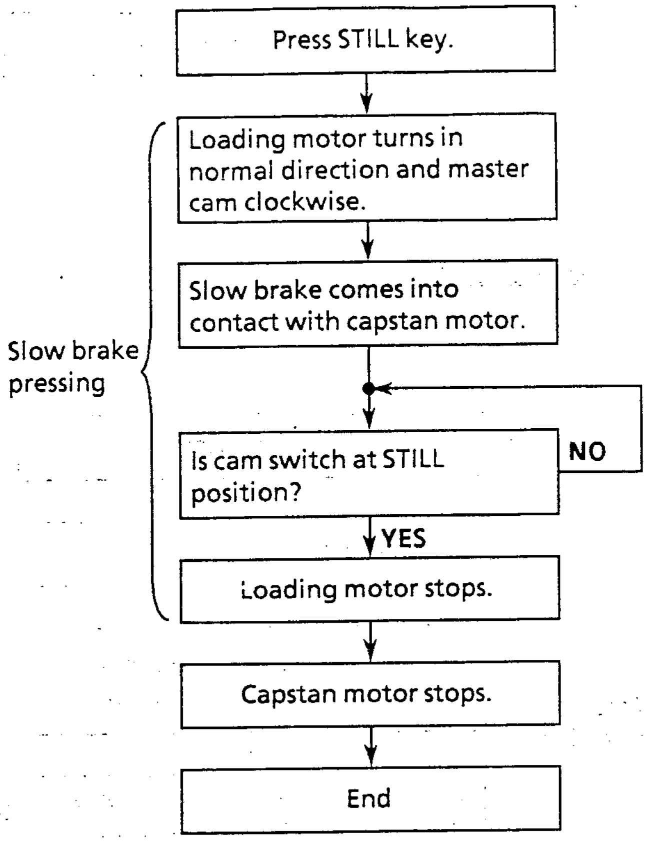
CASSETTE INSERTION → STOP


Cassette inserting
Insert cassette.
Turn off cassette switch.
Loading motor starts in normal direction and master cam clockwise.
Does cassette control clutch come off within 2.5 sec. after cassette switch has turned off?
NO
(Cassette is judged caught halfway.)
YES
Are start/end sensors at high level before cassette insertion?
NO
(Cassette LED or some other part is judged defective.)
YES
Loading motor turns in reverse direction and master cam counterclockwise.
Cassette switch turns on.
Cassette is ejected and loading motor stops.
End
Half-loading
Half-loading lever works to draw out tape.
Is cam switch at FF position?
NO
YES
Loading motor stops.
End

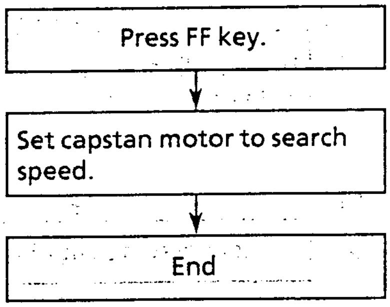
STOP → REC/PLAY


Press REC/PLAY key.
Drum starts.
Loading motor turns in normal direction and master cam clockwise.
Pole base works to draw out tape.
Pinch roller comes into contact.
Is cam switch at PB position?
NO
YES
Loading motor stops.
Tape loading
Is drum FG pulse outputted ?
NO
YES
Capstan motor turns in normal direction.
Picture appears.
Is take-up reel sensor signal outputted?
NO
YES
End
Unloading

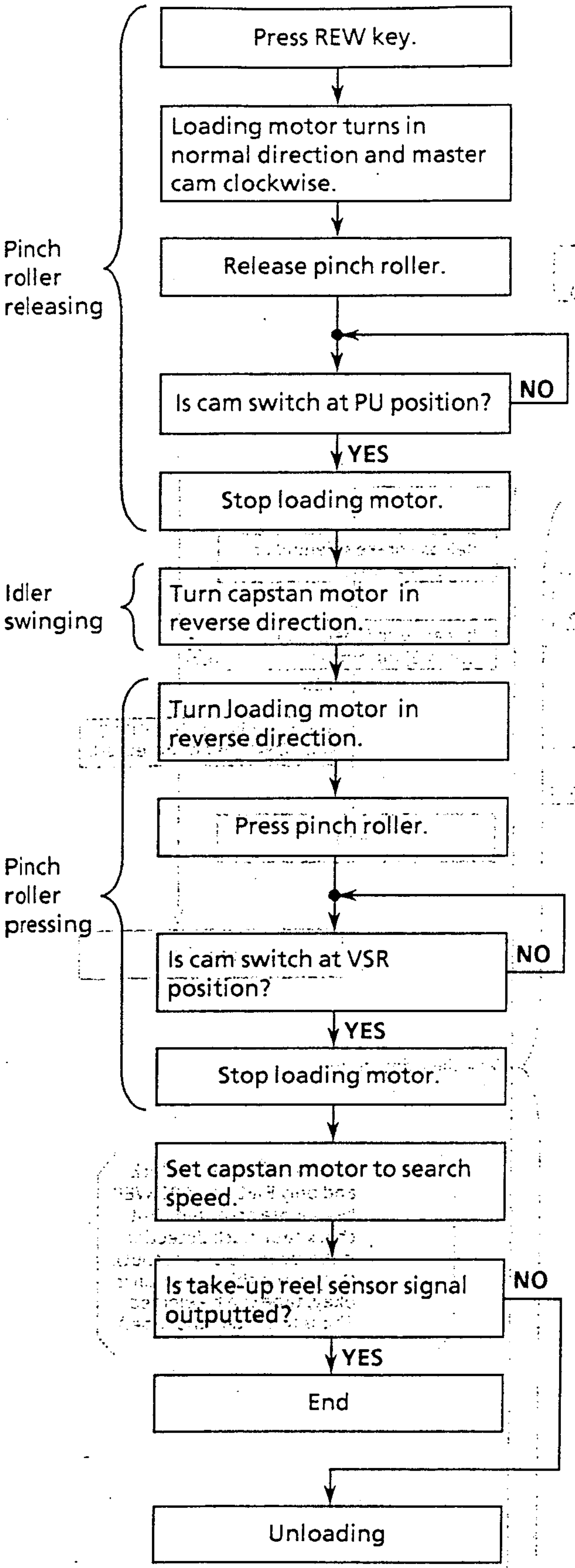
PLAY → STILL


Press STILL key.
Loading motor turns in normal direction and master cam clockwise.
Slow brake comes into contact with capstan motor.
Is cam switch at STILL position?
NO
YES
Loading motor stops.
Slow brake pressing
Capstan motor stops.
End

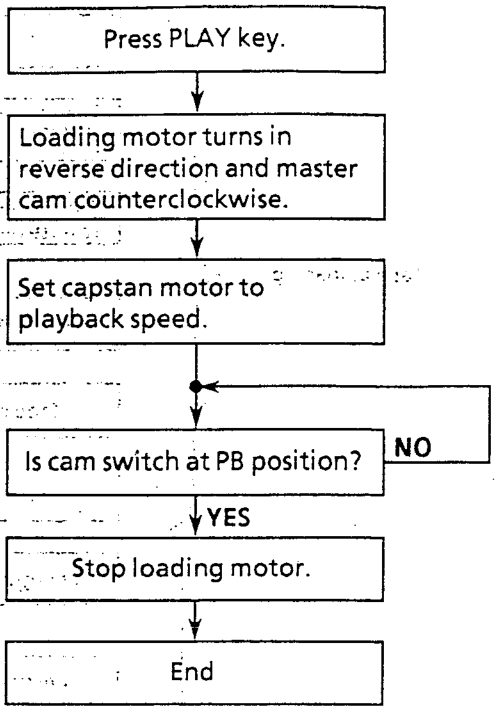
PLAY → VSF


Press FF key.
Set capstan motor to search speed.
End

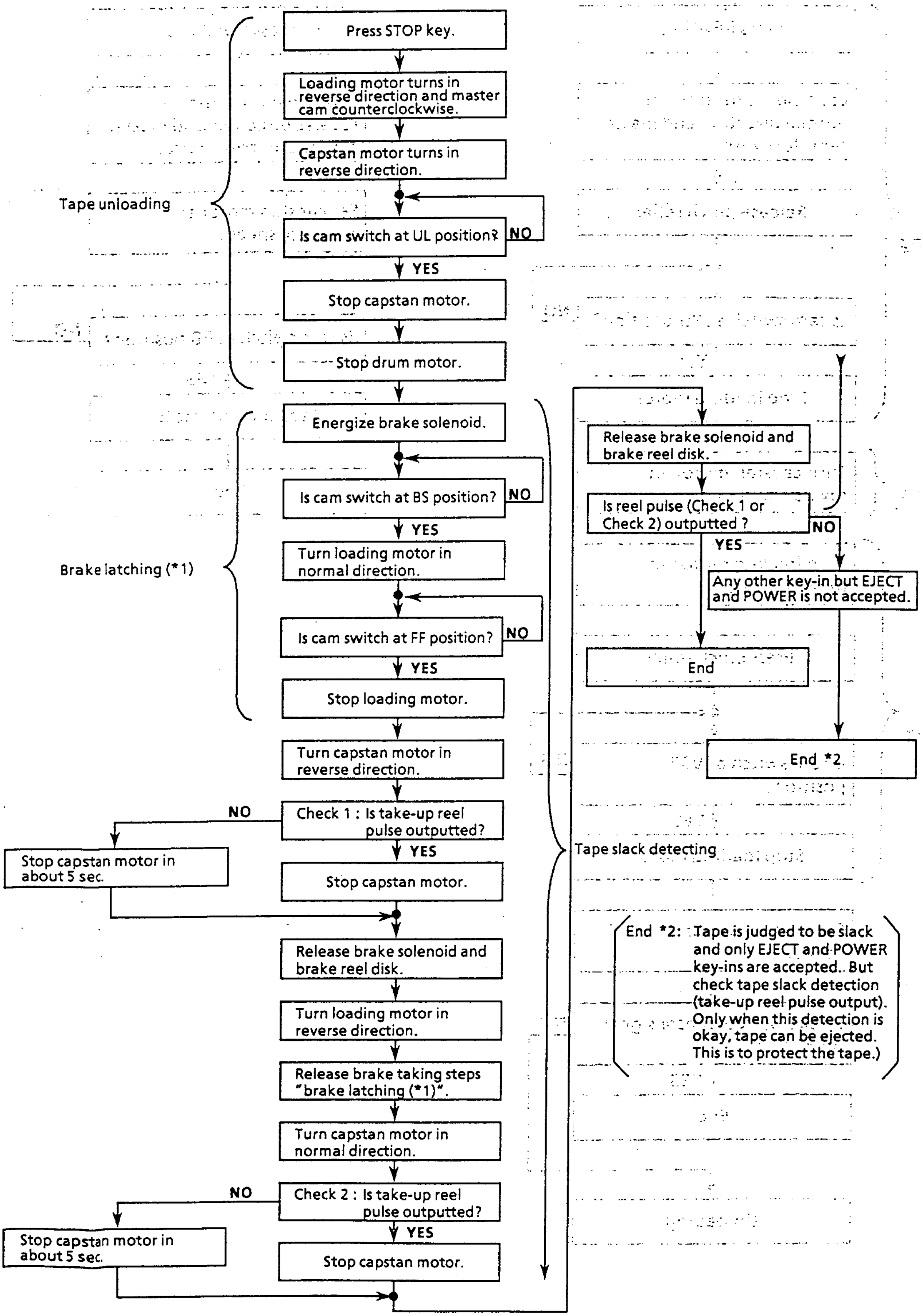
PLAY → VSR


Pinch roller releasing
Press REW key.
Loading motor turns in normal direction and master cam clockwise.
Release pinch roller.
Is cam switch at PU position?
NO
YES
Stop loading motor.
Idler swinging
Turn capstan motor in reverse direction.
Pinch roller pressing
Turn loading motor in reverse direction.
Press pinch roller.
Is cam switch at VSR position?
NO
YES
Stop loading motor.
Set capstan motor to search speed.
Is take-up reel sensor signal outputted?
NO
YES
End
Unloading

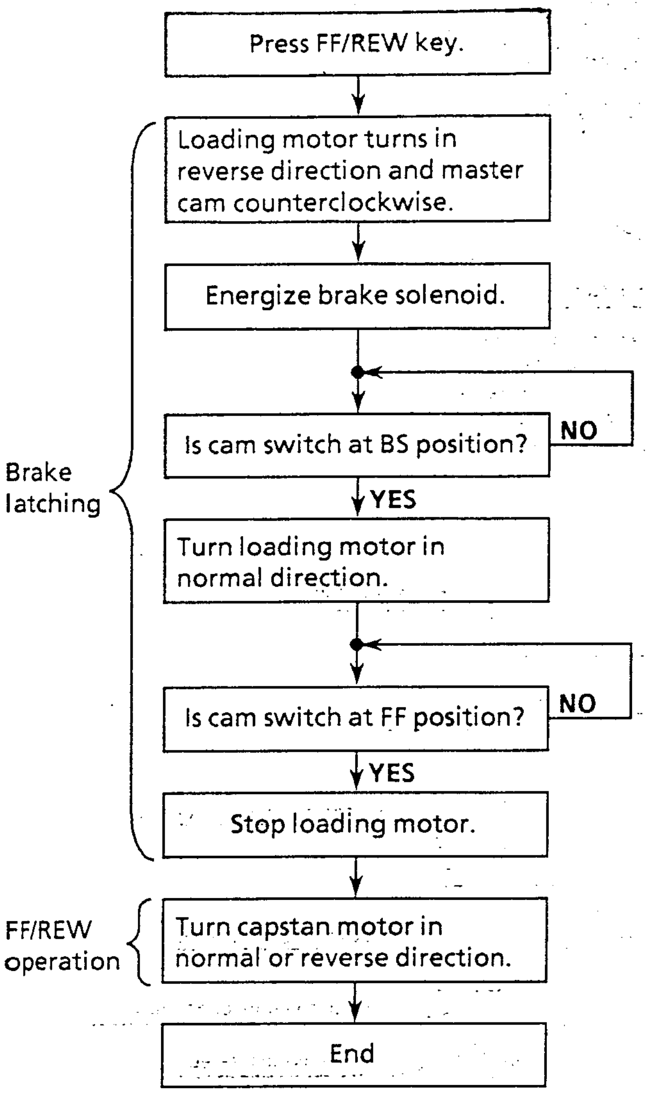
VSR → PLAY


Press PLAY key.
Loading motor turns in reverse direction and master cam counterclockwise.
Set capstan motor to playback speed.
Is cam switch at PB position?
NO
YES
Stop loading motor.
End

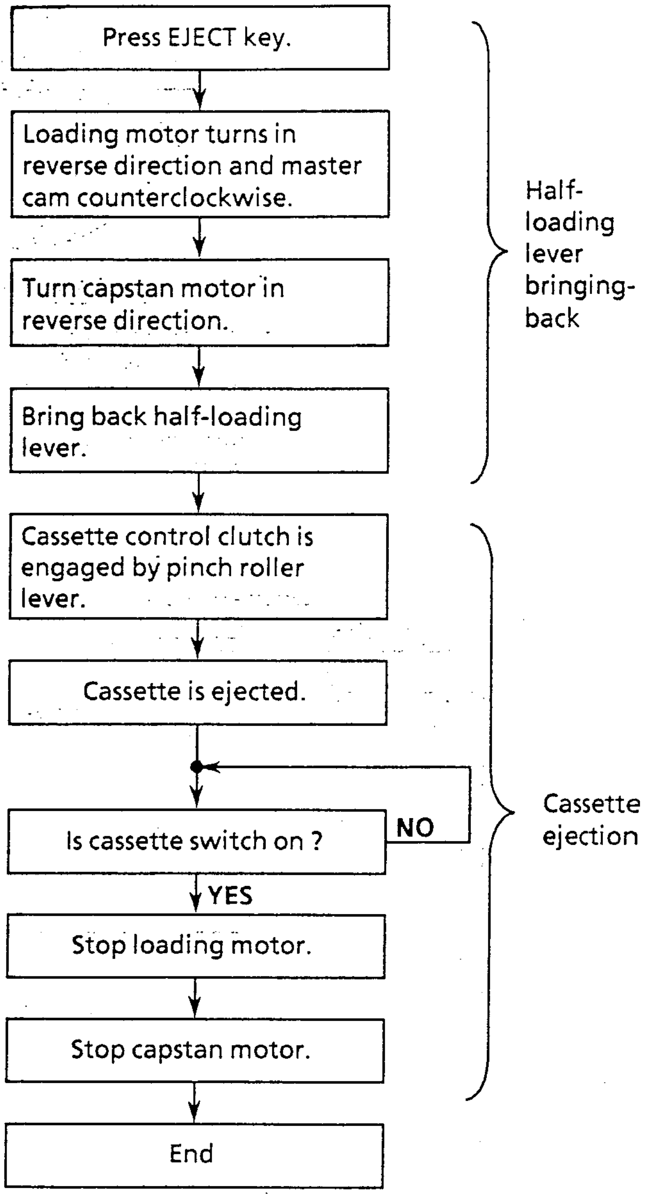
REC/PLAY → STOP


Tape unloading
Press STOP key.
Loading motor turns in reverse direction and master cam counterclockwise.
Capstan motor turns in reverse direction.
Is cam switch at UL position?
NO
YES
Stop capstan motor.
Stop drum motor.
Brake latching (*1)
Energize brake solenoid.
Is cam switch at BS position?
NO
YES
Turn loading motor in normal direction.
Is cam switch at FF position?
NO
YES
Stop loading motor.
Turn capstan motor in reverse direction.
Check 1 : Is take-up reel pulse outputted?
NO
YES
Stop capstan motor in about 5 sec.
Stop capstan motor.
Release brake solenoid and brake reel disk.
Turn loading motor in reverse direction.
Release brake taking steps "brake latching (*1)".
Turn capstan motor in normal direction.
Check 2 : Is take-up reel pulse outputted?
NO
YES
Stop capstan motor in about 5 sec.
Stop capstan motor.
Tape slack detecting
Release brake solenoid and brake reel disk.
Is reel pulse (Check 1 or Check 2) outputted ?
NO
YES
Any other key-in but EJECT and POWER is not accepted.
End
End *2.
End *2: Tape is judged to be slack and only EJECT and POWER key-ins are accepted. But check tape slack detection (take-up reel pulse output). Only when this detection is okay, tape can be ejected. This is to protect the tape.)

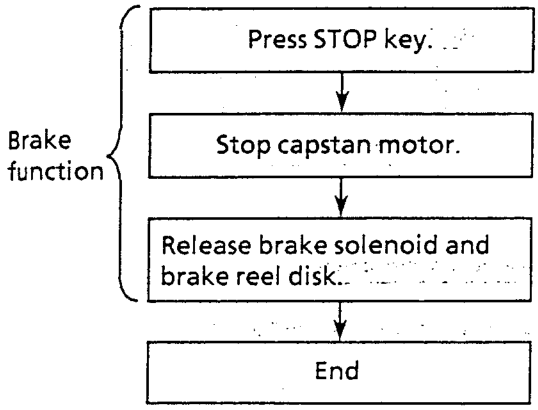
STOP → FF/REW


Press FF/REW key.
Loading motor turns in reverse direction and master cam counterclockwise.
Energize brake solenoid.
Is cam switch at BS position?
NO
YES
Turn loading motor in normal direction.
Is cam switch at FF position?
NO
YES
Stop loading motor.
Turn capstan motor in normal or reverse direction.
End
Brake latching
FF/REW operation

STOP → CASSETTE EJECT


Press EJECT key.
Loading motor turns in reverse direction and master cam counterclockwise.
Turn capstan motor in reverse direction.
Bring back half-loading lever.
Cassette control clutch is engaged by pinch roller lever.
Cassette is ejected.
Is cassette switch on ?
NO
YES
Stop loading motor.
Stop capstan motor.
End
Half-loading lever bringing-back
Cassette ejection

FF/REW → STOP


Press STOP key.
Stop capstan motor.
Release brake solenoid and brake reel disk.
End
Brake function

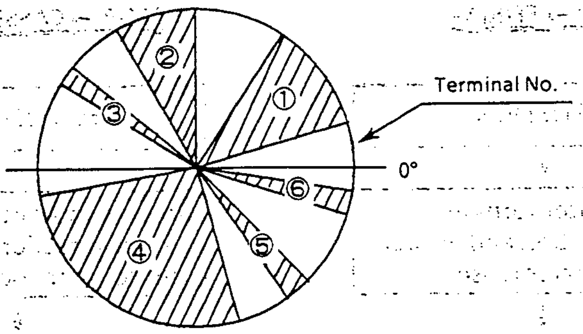

②
①
③
⑥
④
⑤
Terminal No.
0°

Fig. 3-1 Cam switch pattern

* The cam switch has the pattern as shown in Fig. 3-1. The circuit turns on when the signal comes on the shaded zones on the switch. The six pattern signals are judged to be on or off by the system controller in order to detect the mechanism modes.

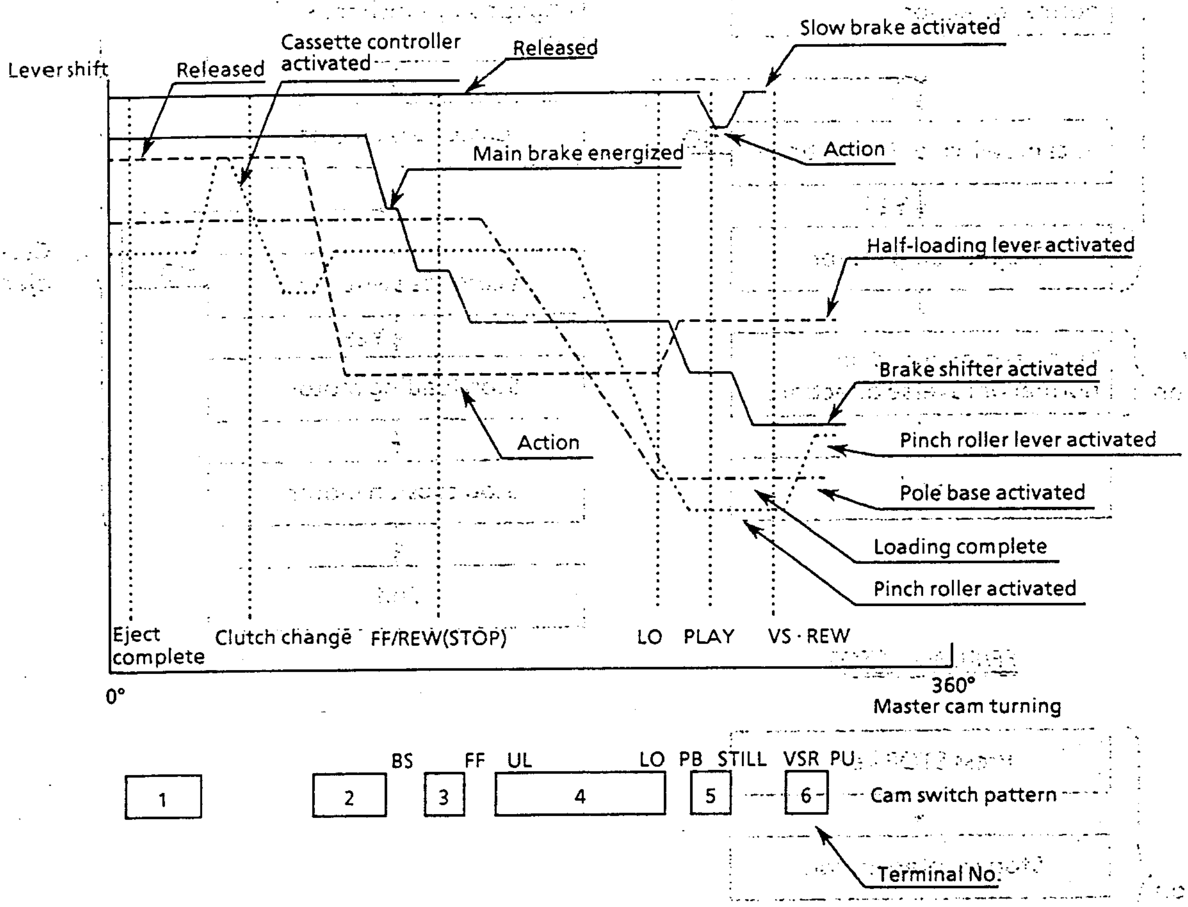
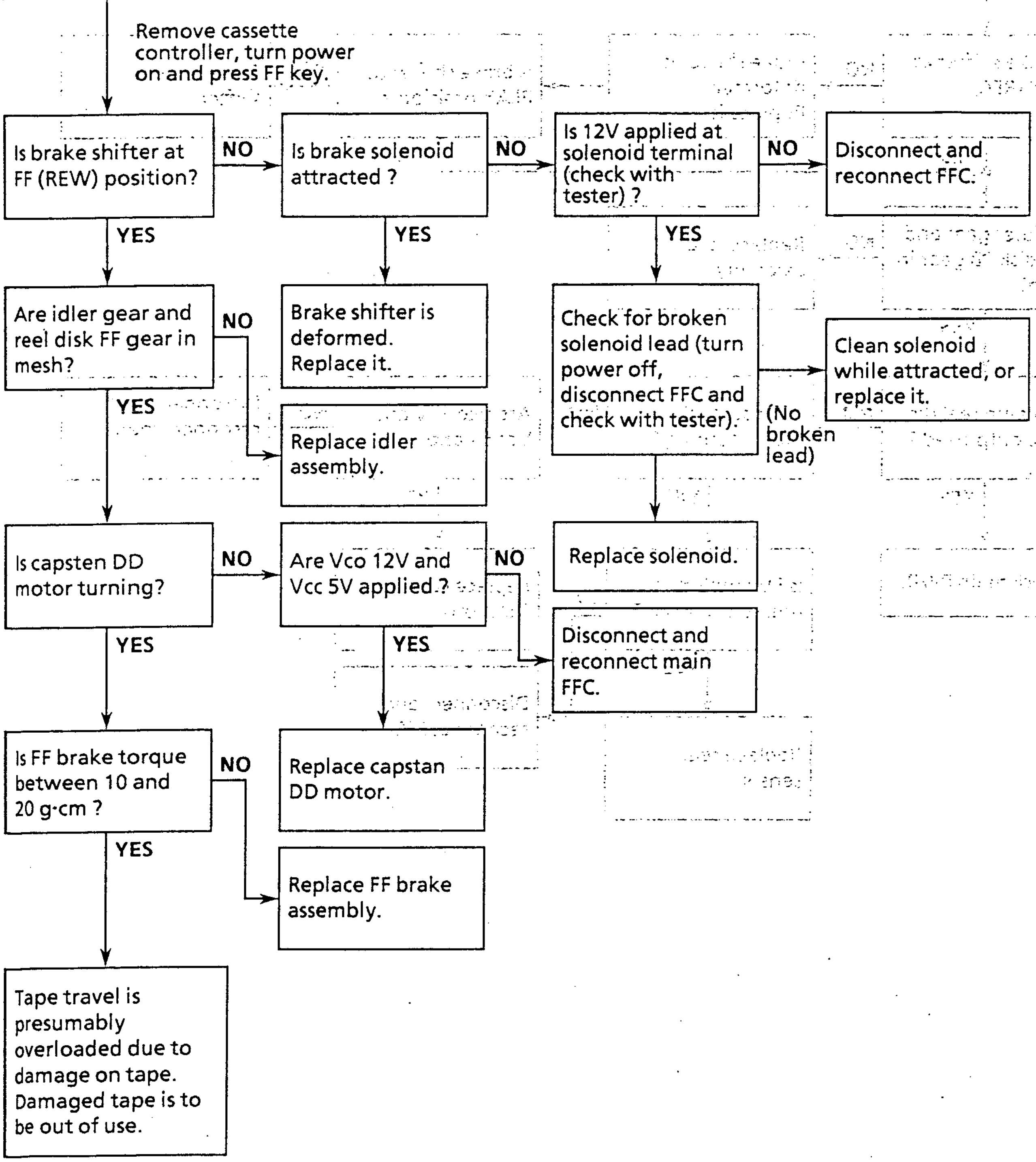

Lever shift
Released
Cassette controller activated
Released
Slow brake activated
Main brake energized
Action
Half-loading lever activated
Brake shifter activated
Action
Pinch roller lever activated
Pole base activated
Loading complete
Pinch roller activated
Eject complete
Clutch change
FF/REW(STOP)
LO
PLAY
VS · REW
0°
360°
Master cam turning
BS
FF
UL
LO
PB
STILL
VSR
PU
1
2
3
4
5
6
Cam switch pattern
Terminal No.

Fig. 3-2 Relationship between cam switch positions and mechanism movement

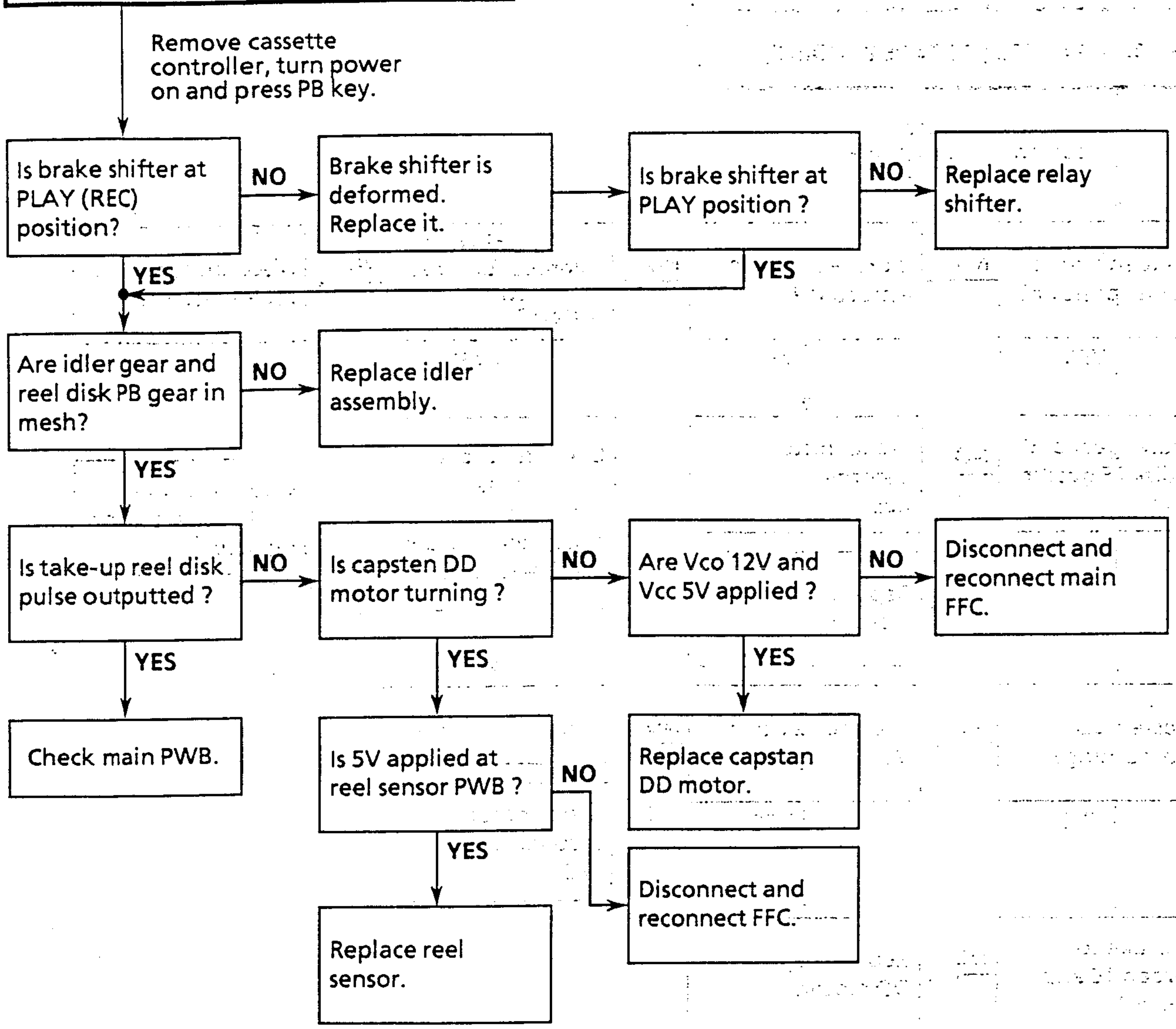
The relationship between the cam switch positions and the mechanism movement is shown in Fig. 3-2.

MECHANISM TROUBLESHOOTING

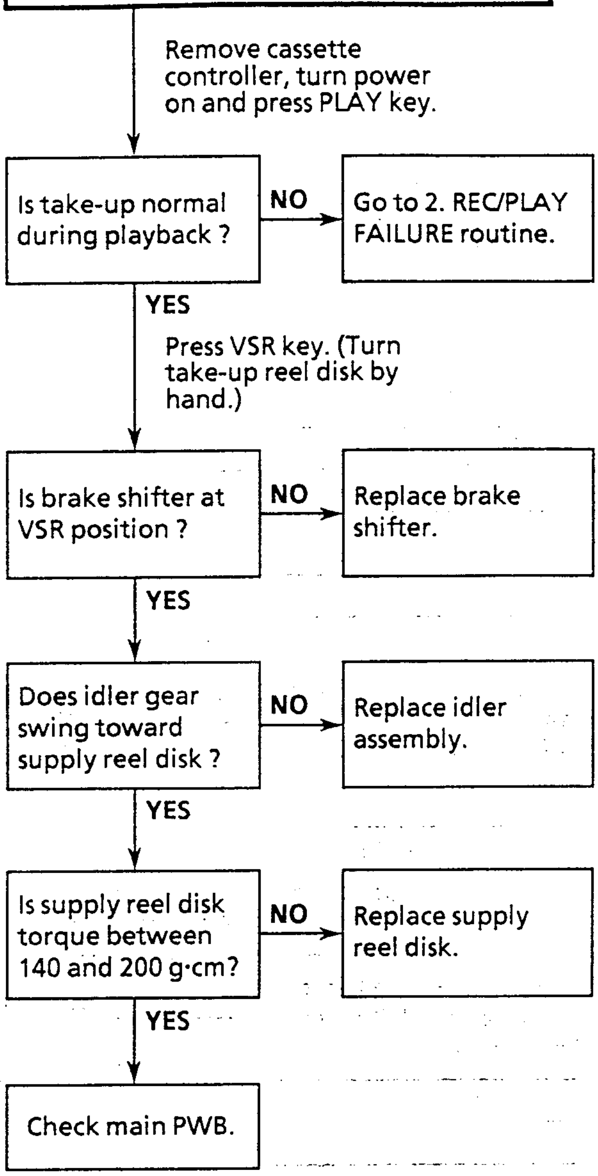
1. FF/REW FAILURE (NO TAPE WINDING)


Remove cassette controller, turn power on and press FF key.
Is brake shifter at FF (REW) position?
NO
Is brake solenoid attracted ?
NO
Is 12V applied at solenoid terminal (check with tester) ?
NO
Disconnect and reconnect FFC.
YES
YES
YES
Are idler gear and reel disk FF gear in mesh?
NO
Brake shifter is deformed. Replace it.
Check for broken solenoid lead (turn power off, disconnect FFC and check with tester).
Clean solenoid while attracted, or replace it.
(No broken lead)
YES
Replace idler assembly.
Is capsten DD motor turning?
NO
Are Vco 12V and Vcc 5V applied ?
NO
Replace solenoid.
Disconnect and reconnect main FFC.
YES
YES
Is FF brake torque between 10 and 20 g·cm ?
NO
Replace capstan DD motor.
YES
Replace FF brake assembly.
Tape travel is presumably overloaded due to damage on tape. Damaged tape is to be out of use.

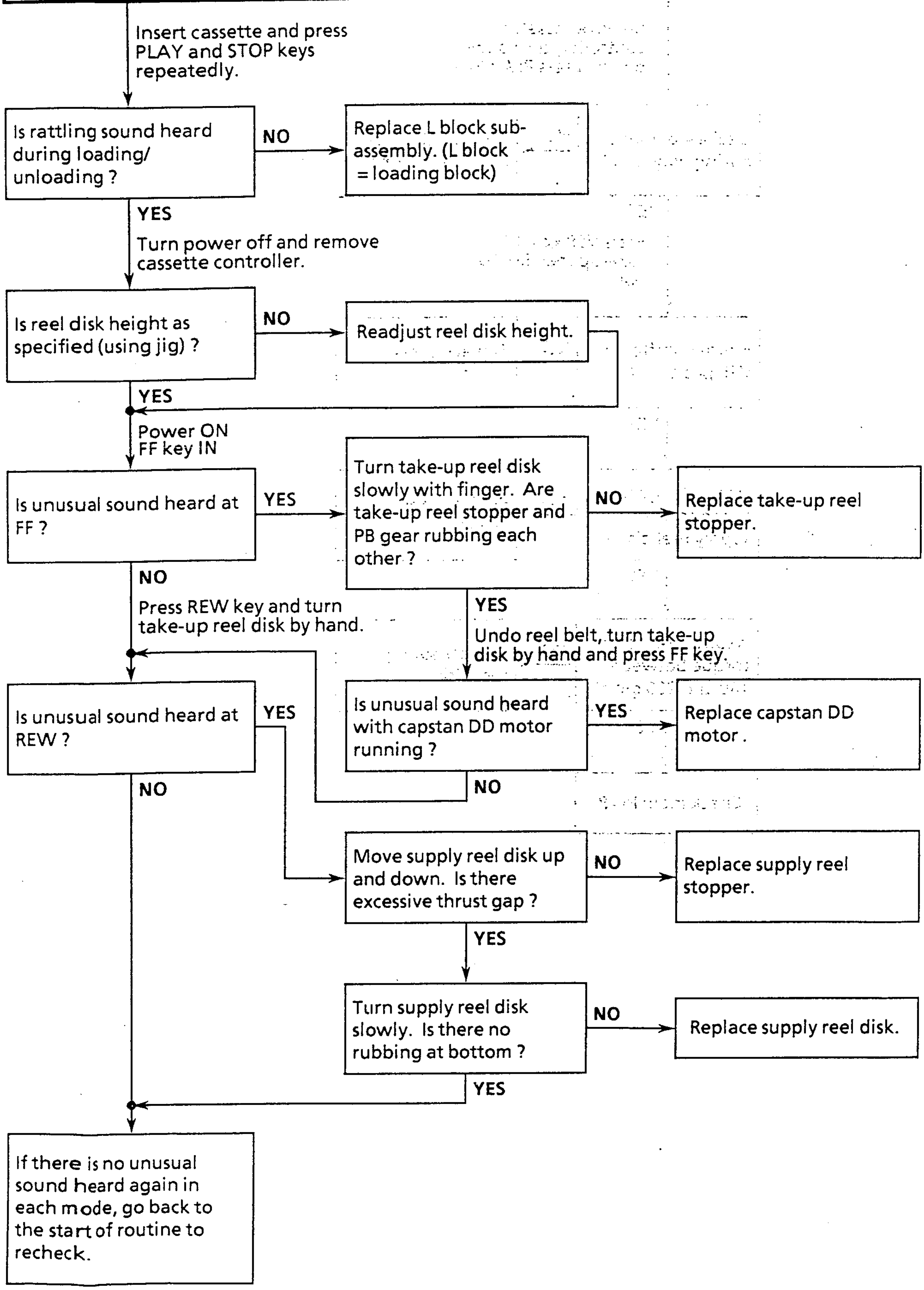
2. REC/PLAY FAILURE (MODE RELEASE)


Remove cassette controller, turn power on and press PB key.
Is brake shifter at PLAY (REC) position?
NO
Brake shifter is deformed. Replace it.
Is brake shifter at PLAY position ?
NO
Replace relay shifter.
YES
YES
Are idler gear and reel disk PB gear in mesh?
NO
Replace idler assembly.
YES
Is take-up reel disk pulse outputted ?
NO
Is capsten DD motor turning ?
NO
Are Vco 12V and Vcc 5V applied ?
NO
Disconnect and reconnect main FFC.
YES
Check main PWB.
YES
Is 5V applied at reel sensor PWB ?
NO
YES
Replace capstan DD motor.
YES
Replace reel sensor.
Disconnect and reconnect FFC.

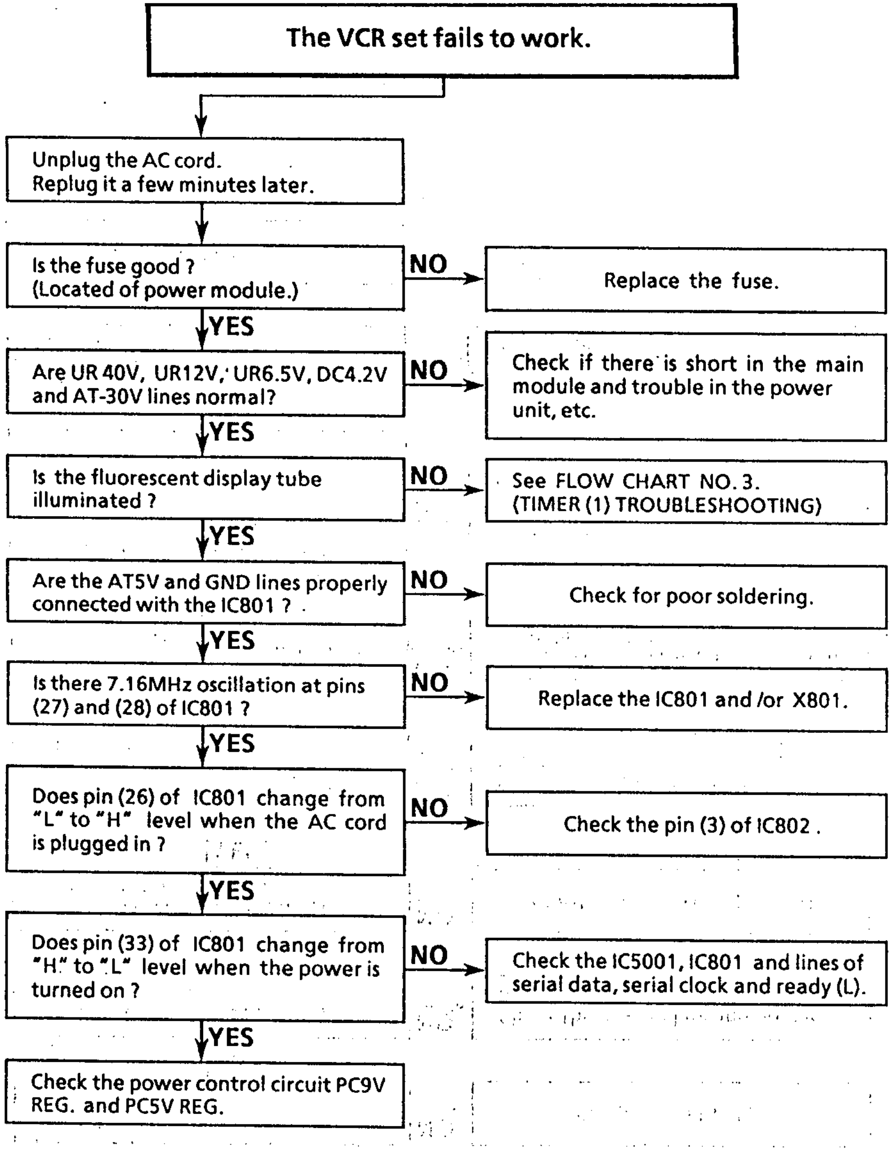
3. WINDING FAILURE AT VSR


Remove cassette controller, turn power on and press PLAY key.
Is take-up normal during playback ?
NO
Go to 2. REC/PLAY FAILURE routine.
YES
Press VSR key. (Turn take-up reel disk by hand.)
Is brake shifter at VSR position ?
NO
Replace brake shifter.
YES
Does idler gear swing toward supply reel disk ?
NO
Replace idler assembly.
YES
Is supply reel disk torque between 140 and 200 g·cm?
NO
Replace supply reel disk.
YES
Check main PWB.

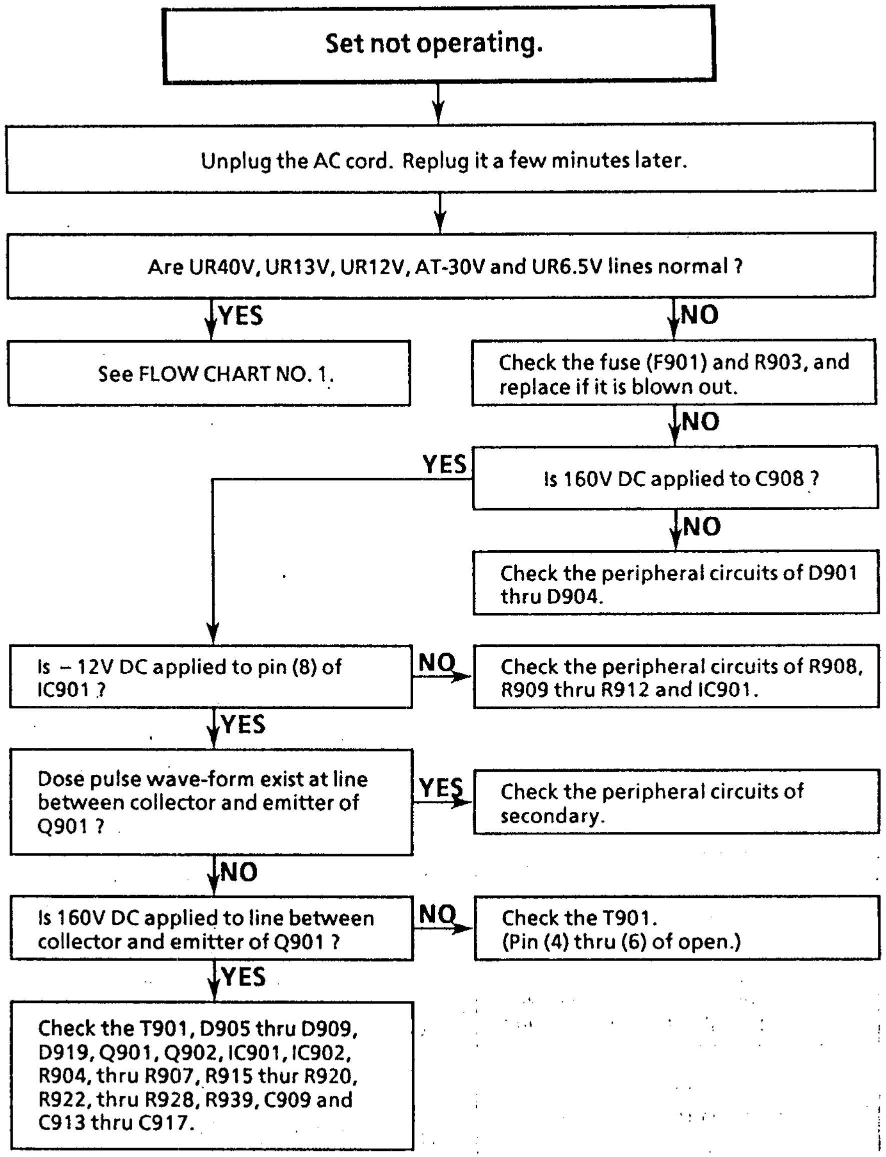
4. UNUSUAL SOUND IN EACH MODE


Insert cassette and press PLAY and STOP keys repeatedly.
Is rattling sound heard during loading/unloading ?
NO
Replace L block sub-assembly. (L block = loading block)
YES
Turn power off and remove cassette controller.
Is reel disk height as specified (using jig) ?
NO
Readjust reel disk height.
YES
Power ON
FF key IN
Is unusual sound heard at FF ?
YES
Turn take-up reel disk slowly with finger. Are take-up reel stopper and PB gear rubbing each other ?
NO
Replace take-up reel stopper.
NO
Press REW key and turn take-up reel disk by hand.
YES
Undo reel belt, turn take-up disk by hand and press FF key.
Is unusual sound heard at REW ?
YES
Is unusual sound heard with capstan DD motor running ?
YES
Replace capstan DD motor .
NO
NO
Move supply reel disk up and down. Is there excessive thrust gap ?
NO
Replace supply reel stopper.
YES
Turn supply reel disk slowly. Is there no rubbing at bottom ?
NO
Replace supply reel disk.
YES
If there is no unusual sound heard again in each mode, go back to the start of routine to recheck.

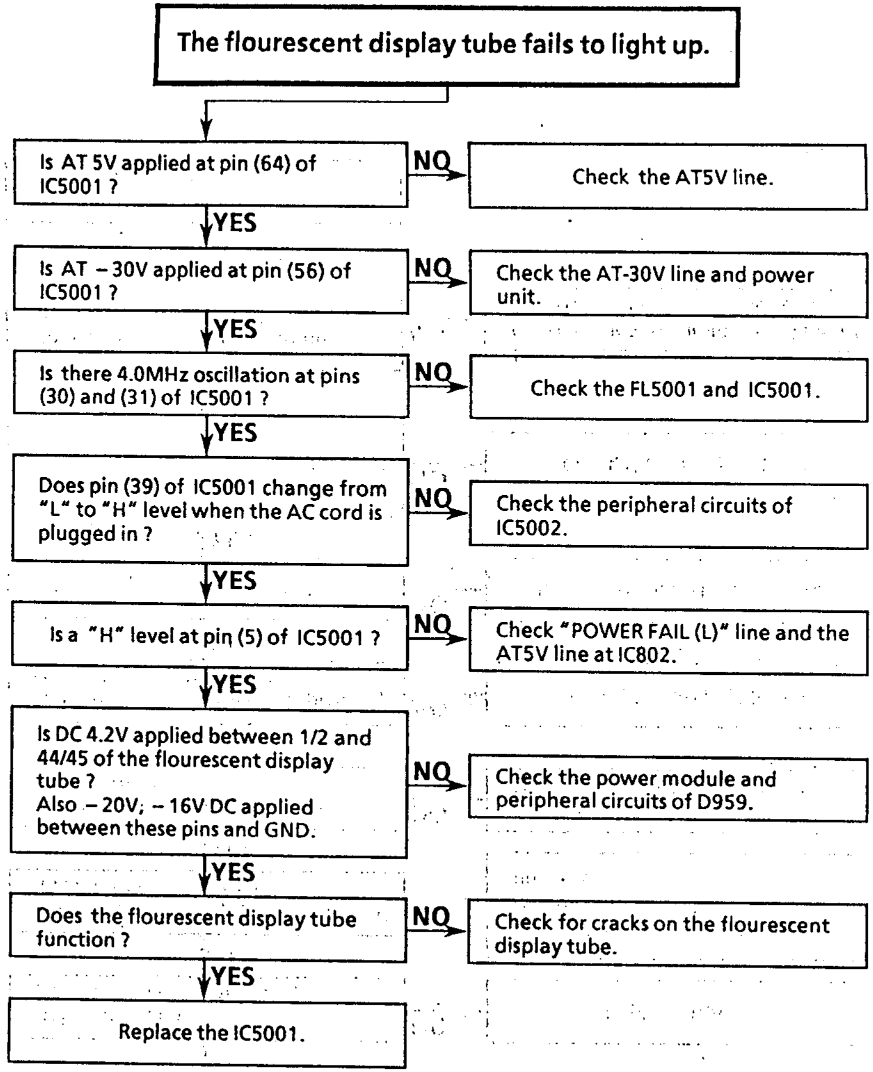
FLOW CHART NO.1 POWER TROUBLESHOOTING


The VCR set fails to work.
Unplug the AC cord. Replug it a few minutes later.
Is the fuse good ? (Located of power module.)
NO
Replace the fuse.
YES
Are UR 40V, UR12V, UR6.5V, DC4.2V and AT-30V lines normal?
NO
Check if there is short in the main module and trouble in the power unit, etc.
YES
Is the fluorescent display tube illuminated ?
NO
See FLOW CHART NO. 3. (TIMER (1) TROUBLESHOOTING)
YES
Are the AT5V and GND lines properly connected with the IC801 ?
NO
Check for poor soldering.
YES
Is there 7.16MHz oscillation at pins (27) and (28) of IC801 ?
NO
Replace the IC801 and /or X801.
YES
Does pin (26) of IC801 change from "L" to "H" level when the AC cord is plugged in ?
NO
Check the pin (3) of IC802 .
YES
Does pin (33) of IC801 change from "H" to "L" level when the power is turned on ?
NO
Check the IC5001, IC801 and lines of serial data, serial clock and ready (L).
YES
Check the power control circuit PC9V REG. and PC5V REG.

FLOW CHART NO. 2 POWER TROUBLESHOOTING


Set not operating.
Unplug the AC cord. Replug it a few minutes later.
Are UR40V, UR13V, UR12V, AT-30V and UR6.5V lines normal ?
YES
See FLOW CHART NO. 1.
NO
Check the fuse (F901) and R903, and replace if it is blown out.
NO
Is 160V DC applied to C908 ?
NO
Check the peripheral circuits of D901 thru D904.
YES
Is – 12V DC applied to pin (8) of IC901 ?
NO
Check the peripheral circuits of R908, R909 thru R912 and IC901.
YES
Dose pulse wave-form exist at line between collector and emitter of Q901 ?
YES
Check the peripheral circuits of secondary.
NO
Is 160V DC applied to line between collector and emitter of Q901 ?
NO
Check the T901. (Pin (4) thru (6) of open.)
YES
Check the T901, D905 thru D909, D919, Q901, Q902, IC901, IC902, R904, thru R907, R915 thur R920, R922, thru R928, R939, C909 and C913 thru C917.

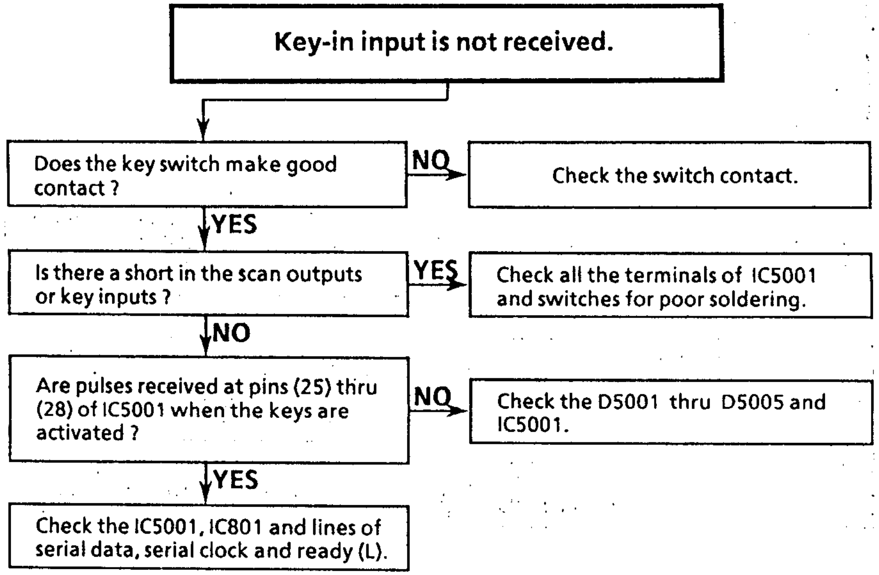
FLOW CHART NO. 3 TIMER (1) TROUBLESHOOTING



The flourescent display tube fails to light up.

Is AT 5V applied at pin (64) of IC5001 ? — NO → Check the AT5V line.
YES
Is AT −30V applied at pin (56) of IC5001 ? — NO → Check the AT-30V line and power unit.
YES
Is there 4.0MHz oscillation at pins (30) and (31) of IC5001 ? — NO → Check the FL5001 and IC5001.
YES
Does pin (39) of IC5001 change from "L" to "H" level when the AC cord is plugged in ? — NO → Check the peripheral circuits of IC5002.
YES
Is a "H" level at pin (5) of IC5001 ? — NO → Check "POWER FAIL (L)" line and the AT5V line at IC802.
YES
Is DC 4.2V applied between 1/2 and 44/45 of the flourescent display tube ? Also −20V; −16V DC applied between these pins and GND. — NO → Check the power module and peripheral circuits of D959.
YES
Does the flourescent display tube function ? — NO → Check for cracks on the flourescent display tube.
YES
Replace the IC5001.

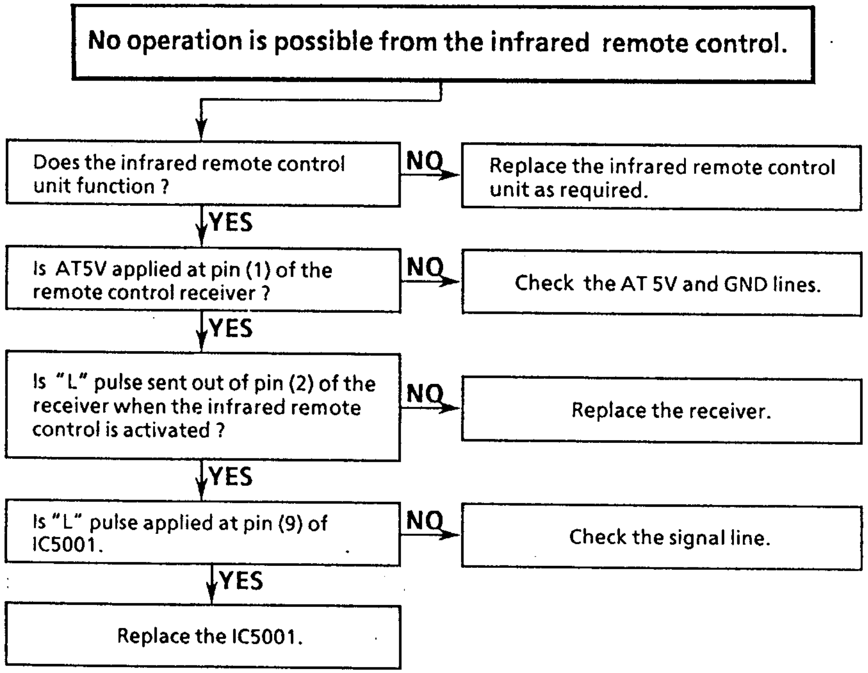
FLOW CHART NO. 4 TIMER (2) TROUBLESHOOTING



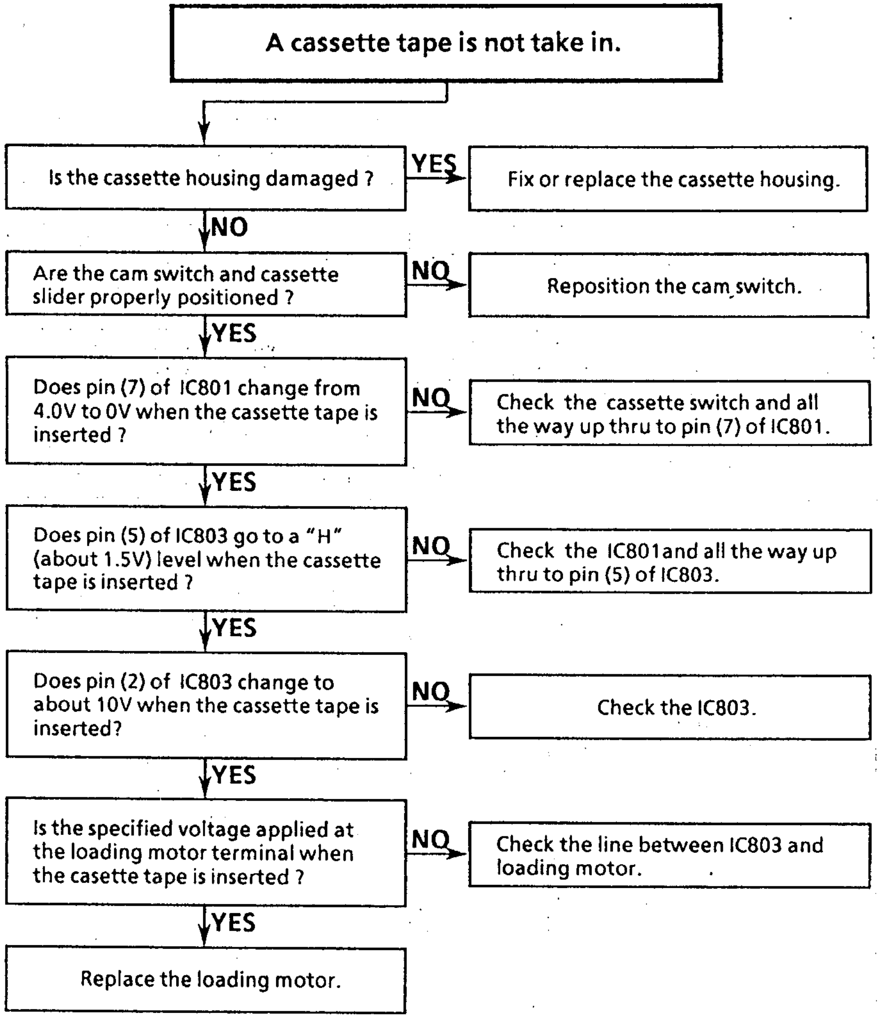
Key-in input is not received.

Does the key switch make good contact ? — NO → Check the switch contact.
YES
Is there a short in the scan outputs or key inputs ? — YES → Check all the terminals of IC5001 and switches for poor soldering.
NO
Are pulses received at pins (25) thru (28) of IC5001 when the keys are activated ? — NO → Check the D5001 thru D5005 and IC5001.
YES
Check the IC5001, IC801 and lines of serial data, serial clock and ready (L).

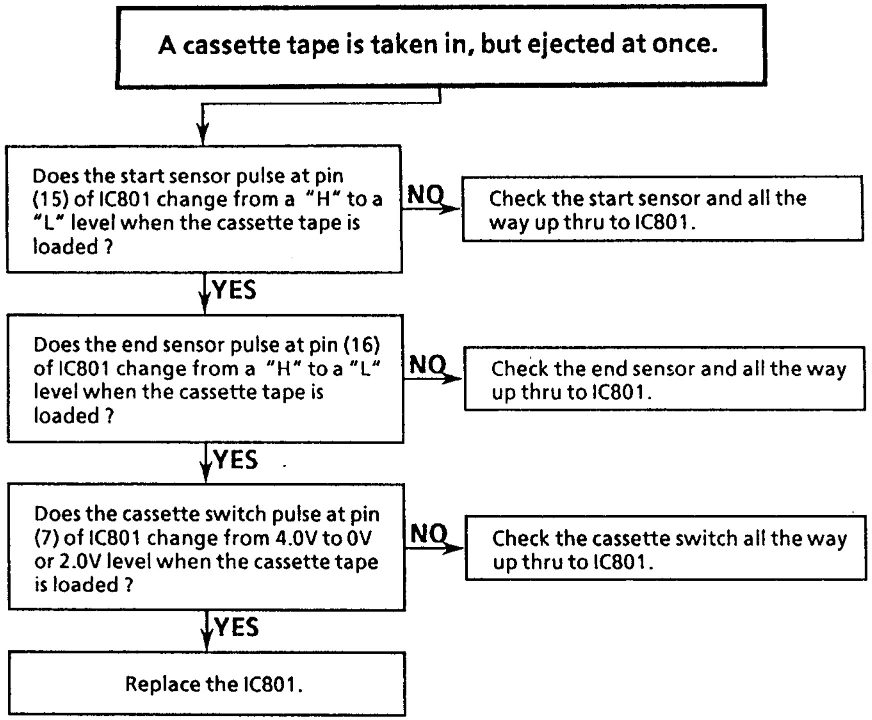
FLOW CHART NO. 5 INFRARED R/C TROUBLESHOOTING


No operation is possible from the infrared remote control.
Does the infrared remote control unit function ?
NO
Replace the infrared remote control unit as required.
YES
Is AT5V applied at pin (1) of the remote control receiver ?
NO
Check the AT 5V and GND lines.
YES
Is "L" pulse sent out of pin (2) of the receiver when the infrared remote control is activated ?
NO
Replace the receiver.
YES
Is "L" pulse applied at pin (9) of IC5001.
NO
Check the signal line.
YES
Replace the IC5001.

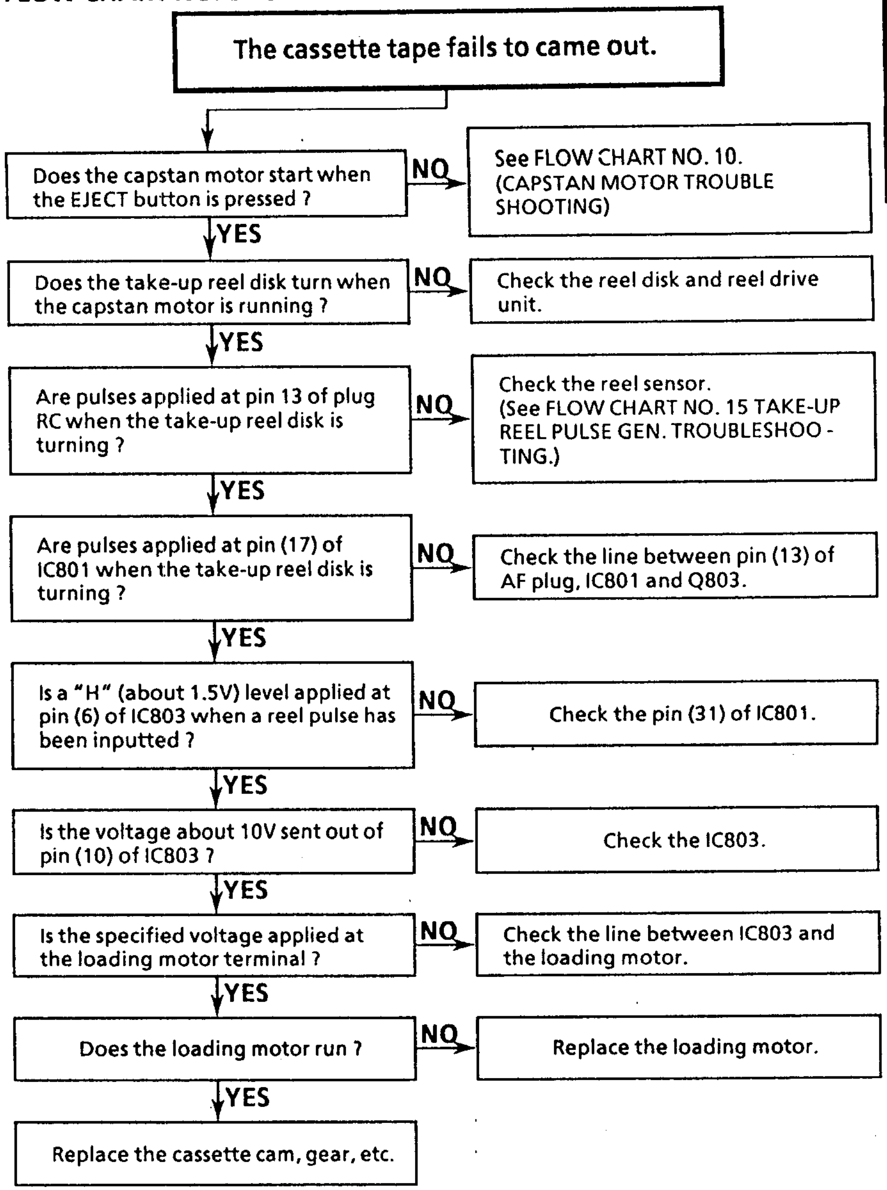
FLOW CHART NO. 6 CASSETTE CONTROL TROUBLESHOOTING (1)


A cassette tape is not take in.
Is the cassette housing damaged ?
YES
Fix or replace the cassette housing.
NO
Are the cam switch and cassette slider properly positioned ?
NO
Reposition the cam switch.
YES
Does pin (7) of IC801 change from 4.0V to 0V when the cassette tape is inserted ?
NO
Check the cassette switch and all the way up thru to pin (7) of IC801.
YES
Does pin (5) of IC803 go to a "H" (about 1.5V) level when the cassette tape is inserted ?
NO
Check the IC801and all the way up thru to pin (5) of IC803.
YES
Does pin (2) of IC803 change to about 10V when the cassette tape is inserted?
NO
Check the IC803.
YES
Is the specified voltage applied at the loading motor terminal when the casette tape is inserted ?
NO
Check the line between IC803 and loading motor.
YES
Replace the loading motor.

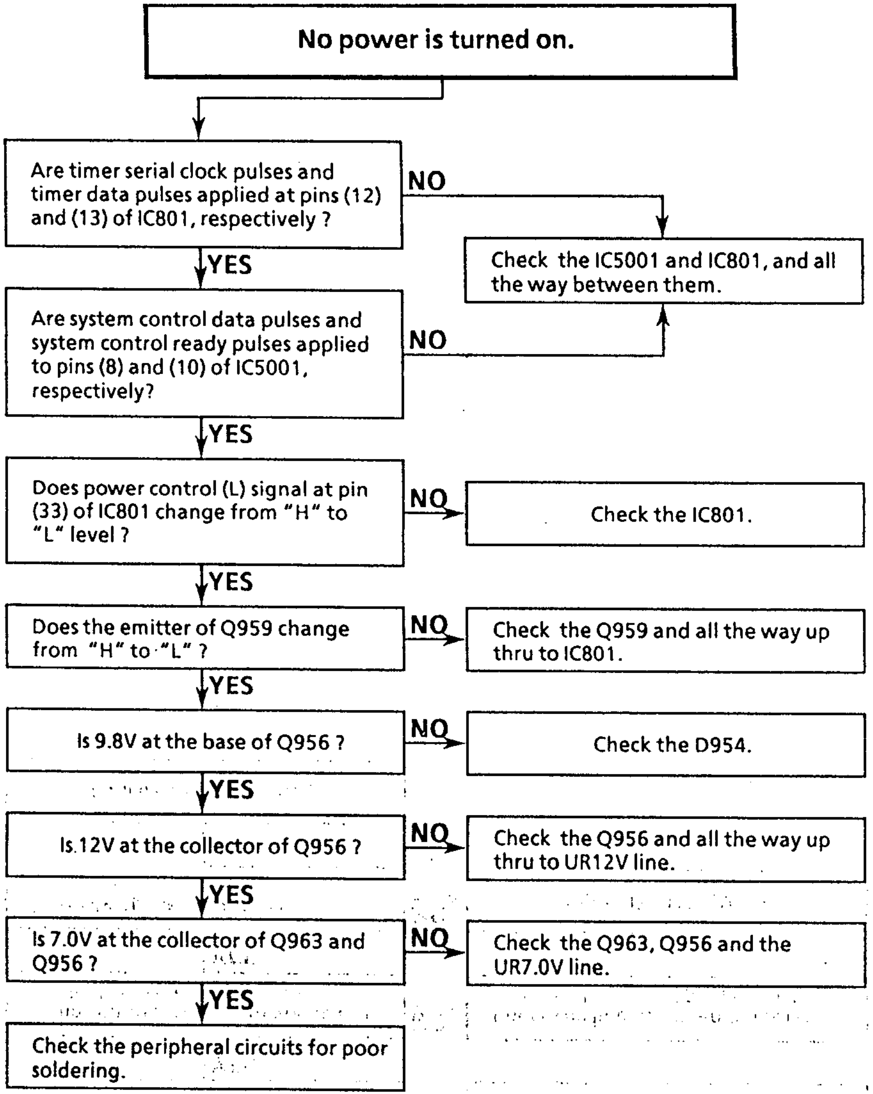
FLOW CHART NO. 7 CASSETTE CONTROL TROUBLESHOOTING (2)


A cassette tape is taken in, but ejected at once.
Does the start sensor pulse at pin (15) of IC801 change from a "H" to a "L" level when the cassette tape is loaded ?
NO
Check the start sensor and all the way up thru to IC801.
YES
Does the end sensor pulse at pin (16) of IC801 change from a "H" to a "L" level when the cassette tape is loaded ?
NO
Check the end sensor and all the way up thru to IC801.
YES
Does the cassette switch pulse at pin (7) of IC801 change from 4.0V to 0V or 2.0V level when the cassette tape is loaded ?
NO
Check the cassette switch all the way up thru to IC801.
YES
Replace the IC801.

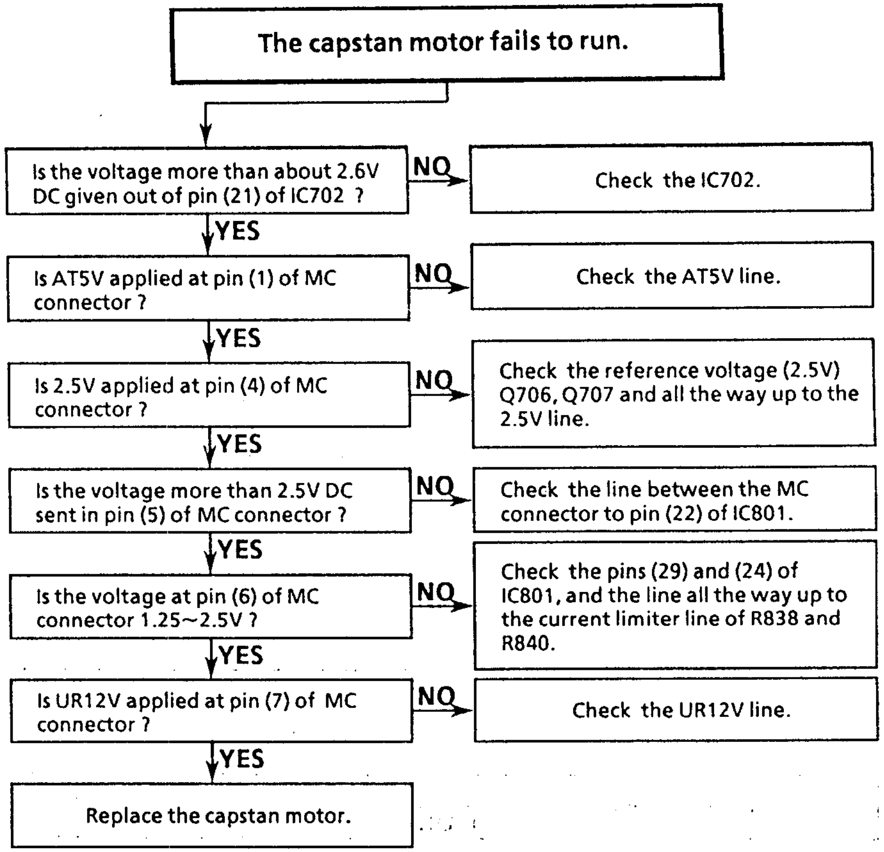
FLOW CHART NO. 8 LOADING MOTOR AND EJECT TROUBLESHOOTING


The cassette tape fails to came out.
Does the capstan motor start when the EJECT button is pressed ?
NO
See FLOW CHART NO. 10. (CAPSTAN MOTOR TROUBLE SHOOTING)
YES
Does the take-up reel disk turn when the capstan motor is running ?
NO
Check the reel disk and reel drive unit.
YES
Are pulses applied at pin 13 of plug RC when the take-up reel disk is turning ?
NO
Check the reel sensor. (See FLOW CHART NO. 15 TAKE-UP REEL PULSE GEN. TROUBLESHOOTING.)
YES
Are pulses applied at pin (17) of IC801 when the take-up reel disk is turning ?
NO
Check the line between pin (13) of AF plug, IC801 and Q803.
YES
Is a "H" (about 1.5V) level applied at pin (6) of IC803 when a reel pulse has been inputted ?
NO
Check the pin (31) of IC801.
YES
Is the voltage about 10V sent out of pin (10) of IC803 ?
NO
Check the IC803.
YES
Is the specified voltage applied at the loading motor terminal ?
NO
Check the line between IC803 and the loading motor.
YES
Does the loading motor run ?
NO
Replace the loading motor.
YES
Replace the cassette cam, gear, etc.

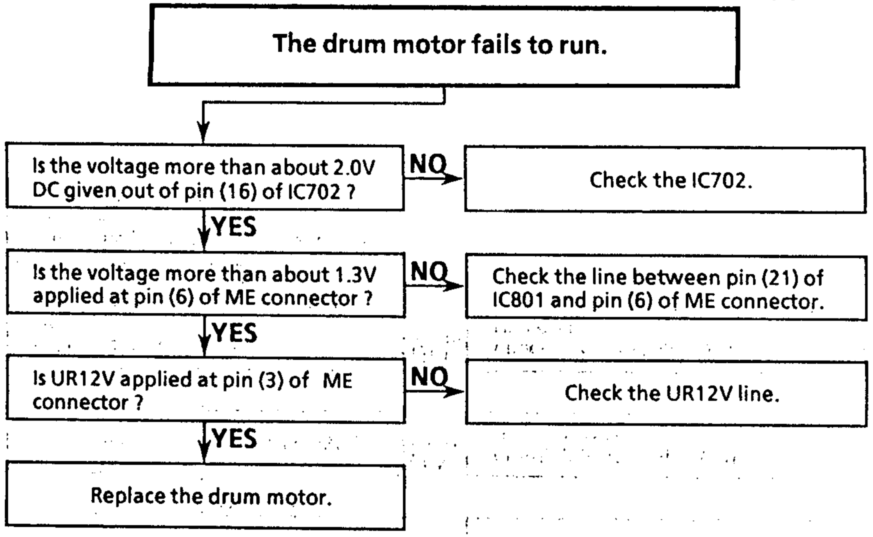
FLOW CHART NO. 9 SYSTEM CONTROL TROUBLESHOOTING


No power is turned on.
Are timer serial clock pulses and timer data pulses applied at pins (12) and (13) of IC801, respectively ?
NO
Check the IC5001 and IC801, and all the way between them.
YES
Are system control data pulses and system control ready pulses applied to pins (8) and (10) of IC5001, respectively?
NO
YES
Does power control (L) signal at pin (33) of IC801 change from "H" to "L" level ?
NO
Check the IC801.
YES
Does the emitter of Q959 change from "H" to "L" ?
NO
Check the Q959 and all the way up thru to IC801.
YES
Is 9.8V at the base of Q956 ?
NO
Check the D954.
YES
Is 12V at the collector of Q956 ?
NO
Check the Q956 and all the way up thru to UR12V line.
YES
Is 7.0V at the collector of Q963 and Q956 ?
NO
Check the Q963, Q956 and the UR7.0V line.
YES
Check the peripheral circuits for poor soldering.

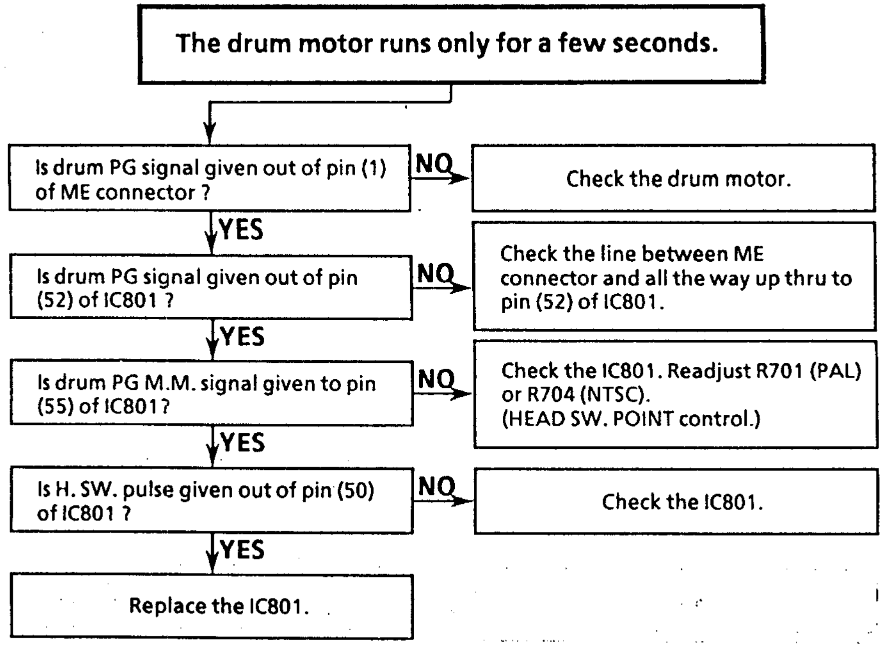
FLOW CHART NO. 10 CAPSTAN MOTOR TROUBLESHOOTING


The capstan motor fails to run.
Is the voltage more than about 2.6V DC given out of pin (21) of IC702 ?
NO
Check the IC702.
YES
Is AT5V applied at pin (1) of MC connector ?
NO
Check the AT5V line.
YES
Is 2.5V applied at pin (4) of MC connector ?
NO
Check the reference voltage (2.5V) Q706, Q707 and all the way up to the 2.5V line.
YES
Is the voltage more than 2.5V DC sent in pin (5) of MC connector ?
NO
Check the line between the MC connector to pin (22) of IC801.
YES
Is the voltage at pin (6) of MC connector 1.25~2.5V ?
NO
Check the pins (29) and (24) of IC801, and the line all the way up to the current limiter line of R838 and R840.
YES
Is UR12V applied at pin (7) of MC connector ?
NO
Check the UR12V line.
YES
Replace the capstan motor.

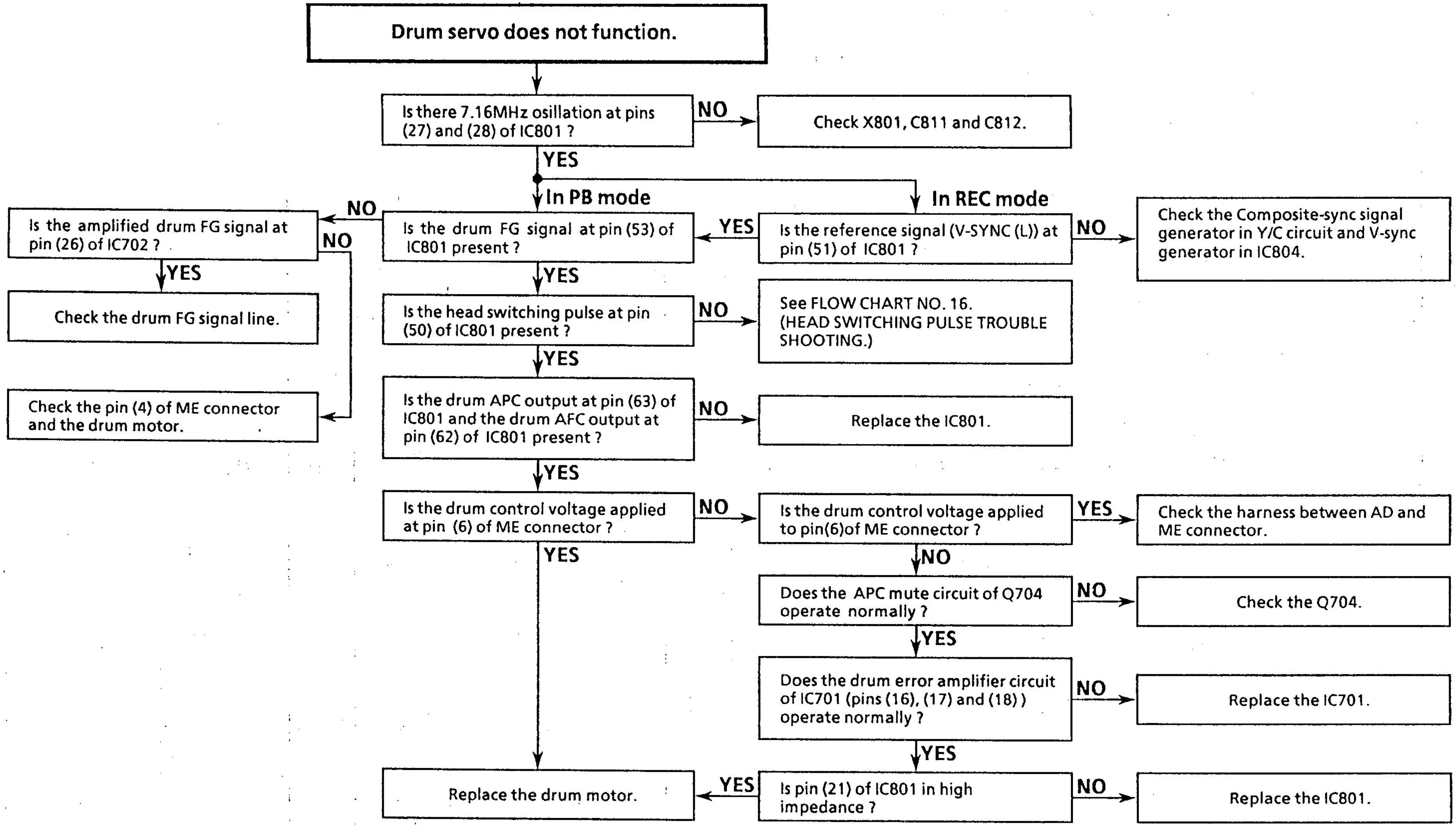
FLOW CHART NO. 11 DRUM MOTOR TROUBLESHOOTING (1)


The drum motor fails to run.
Is the voltage more than about 2.0V DC given out of pin (16) of IC702 ?
NO
Check the IC702.
YES
Is the voltage more than about 1.3V applied at pin (6) of ME connector ?
NO
Check the line between pin (21) of IC801 and pin (6) of ME connector.
YES
Is UR12V applied at pin (3) of ME connector ?
NO
Check the UR12V line.
YES
Replace the drum motor.

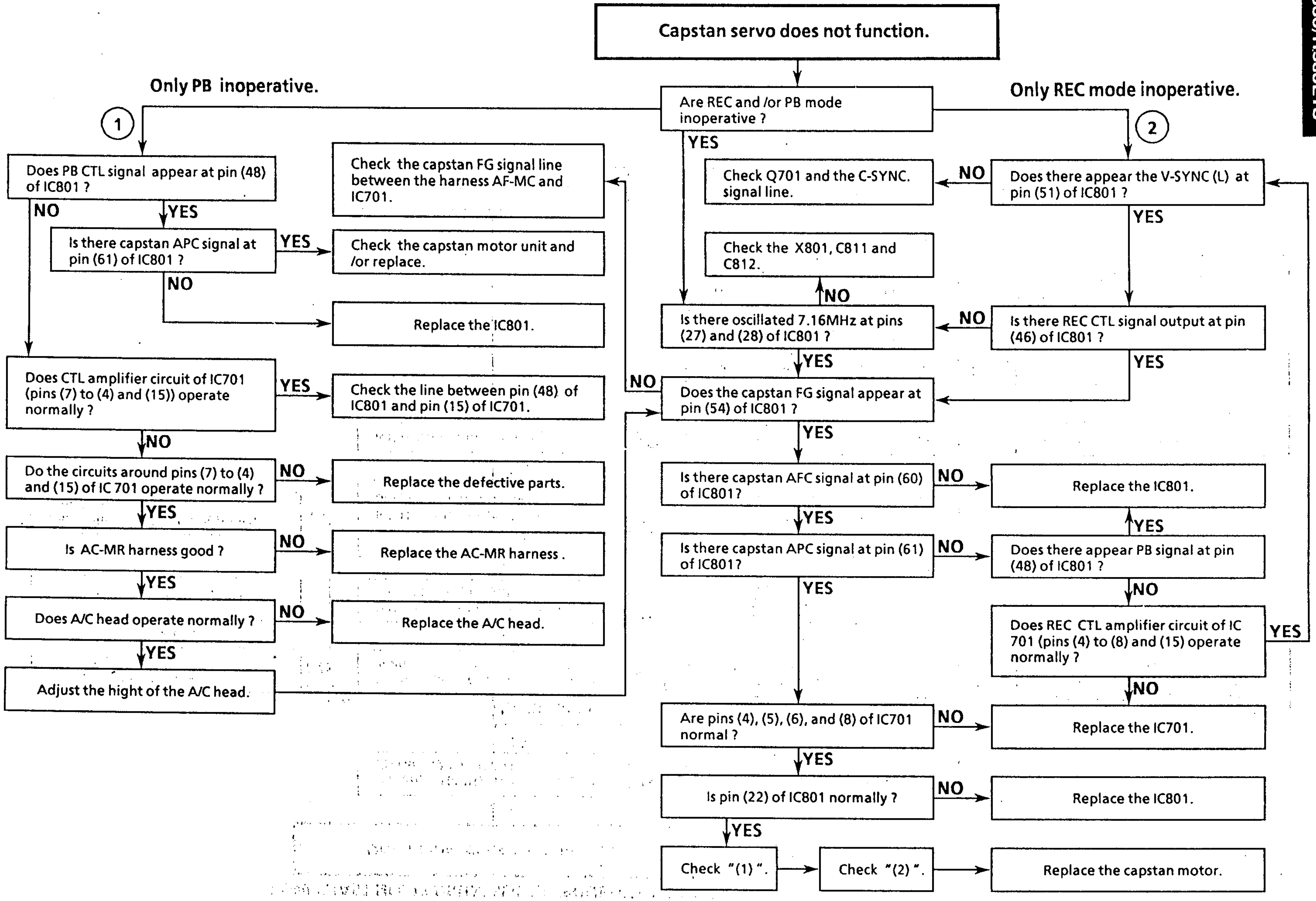
FLOW CHART NO. 12 DRUM MOTOR TROUBLESHOOTING (2)


The drum motor runs only for a few seconds.
Is drum PG signal given out of pin (1) of ME connector ?
NO
Check the drum motor.
YES
Is drum PG signal given out of pin (52) of IC801 ?
NO
Check the line between ME connector and all the way up thru to pin (52) of IC801.
YES
Is drum PG M.M. signal given to pin (55) of IC801?
NO
Check the IC801. Readjust R701 (PAL) or R704 (NTSC). (HEAD SW. POINT control.)
YES
Is H. SW. pulse given out of pin (50) of IC801 ?
NO
Check the IC801.
YES
Replace the IC801.

FLOW CHART NO. 13 DRUM SERVO TROUBLESHOOTING


Drum servo does not function.
Is there 7.16MHz osillation at pins (27) and (28) of IC801 ?
NO
Check X801, C811 and C812.
YES
In PB mode
In REC mode
Is the drum FG signal at pin (53) of IC801 present ?
NO
Is the amplified drum FG signal at pin (26) of IC702 ?
YES
Check the drum FG signal line.
NO
Check the pin (4) of ME connector and the drum motor.
Is the reference signal (V-SYNC (L)) at pin (51) of IC801 ?
YES
NO
Check the Composite-sync signal generator in Y/C circuit and V-sync generator in IC804.
YES
Is the head switching pulse at pin (50) of IC801 present ?
NO
See FLOW CHART NO. 16. (HEAD SWITCHING PULSE TROUBLE SHOOTING.)
YES
Is the drum APC output at pin (63) of IC801 and the drum AFC output at pin (62) of IC801 present ?
NO
Replace the IC801.
YES
Is the drum control voltage applied at pin (6) of ME connector ?
NO
Is the drum control voltage applied to pin(6)of ME connector ?
YES
Check the harness between AD and ME connector.
NO
Does the APC mute circuit of Q704 operate normally ?
NO
Check the Q704.
YES
Does the drum error amplifier circuit of IC701 (pins (16), (17) and (18)) operate normally ?
NO
Replace the IC701.
YES
Is pin (21) of IC801 in high impedance ?
NO
Replace the IC801.
YES
Replace the drum motor.
YES

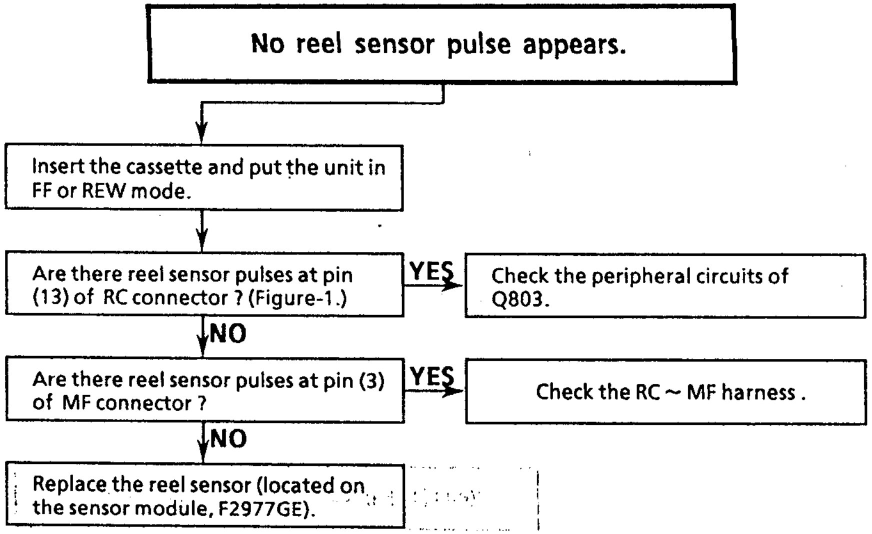
FLOW CHART NO. 14 CAPSTAN SERVO TROUBLESHOOTING


Capstan servo does not function.
Only PB inoperative.
Only REC mode inoperative.
Are REC and /or PB mode inoperative ?
YES
①
②
Does PB CTL signal appear at pin (48) of IC801 ?
NO
YES
Is there capstan APC signal at pin (61) of IC801 ?
YES
Check the capstan motor unit and /or replace.
NO
Replace the IC801.
Check the capstan FG signal line between the harness AF-MC and IC701.
Does CTL amplifier circuit of IC701 (pins (7) to (4) and (15)) operate normally ?
YES
Check the line between pin (48) of IC801 and pin (15) of IC701.
NO
Do the circuits around pins (7) to (4) and (15) of IC 701 operate normally ?
NO
Replace the defective parts.
YES
Is AC-MR harness good ?
NO
Replace the AC-MR harness .
YES
Does A/C head operate normally ?
NO
Replace the A/C head.
YES
Adjust the hight of the A/C head.
Does there appear the V-SYNC (L) at pin (51) of IC801 ?
NO
Check Q701 and the C-SYNC. signal line.
YES
Check the X801, C811 and C812.
NO
Is there oscillated 7.16MHz at pins (27) and (28) of IC801 ?
NO
Is there REC CTL signal output at pin (46) of IC801 ?
YES
YES
NO
Does the capstan FG signal appear at pin (54) of IC801 ?
YES
Is there capstan AFC signal at pin (60) of IC801?
NO
Replace the IC801.
YES
Is there capstan APC signal at pin (61) of IC801?
NO
Does there appear PB signal at pin (48) of IC801 ?
YES
NO
Does REC CTL amplifier circuit of IC 701 (pins (4) to (8) and (15) operate normally ?
YES
NO
Replace the IC701.
YES
Are pins (4), (5), (6), and (8) of IC701 normal ?
NO
YES
Is pin (22) of IC801 normally ?
NO
Replace the IC801.
YES
Check "(1)".
Check "(2)".
Replace the capstan motor.

FLOW CHART NO. 15 TAKE-UP REEL PULSE GENERATOR TROUBLESHOOTING

Note:

CONTINUED TO FLOW CHART NO.8 LOADING MOTOR AND EJECT TROUBLESHOOTING


No reel sensor pulse appears.
Insert the cassette and put the unit in FF or REW mode.
Are there reel sensor pulses at pin (13) of RC connector ? (Figure-1.)
YES
Check the peripheral circuits of Q803.
NO
Are there reel sensor pulses at pin (3) of MF connector ?
YES
Check the RC ~ MF harness .
NO
Replace the reel sensor (located on the sensor module, F2977GE).

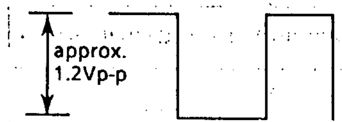


Figure-1.

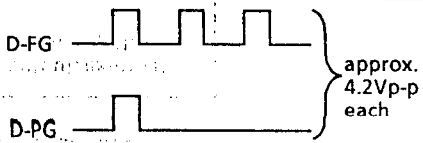
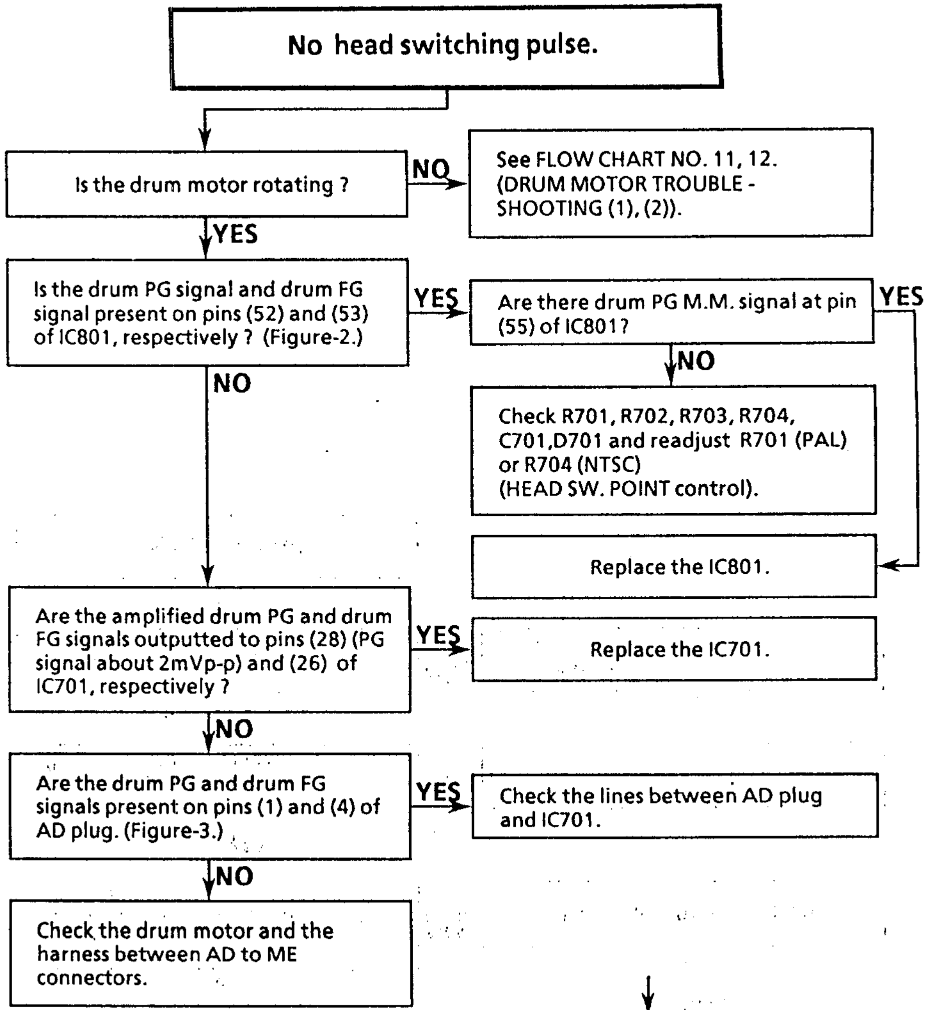


Figure-2.

FLOW CHART NO. 16 HEAD SWITCHING PULSE TROUBLESHOOTING

Note:

CONTINUED TO FLOW CHART NO. 13 DRUM SERVO TROUBLESHOOTING


No head switching pulse.
Is the drum motor rotating ?
NO
See FLOW CHART NO. 11, 12. (DRUM MOTOR TROUBLE - SHOOTING (1), (2)).
YES
Is the drum PG signal and drum FG signal present on pins (52) and (53) of IC801, respectively ? (Figure-2.)
YES
Are there drum PG M.M. signal at pin (55) of IC801?
YES
NO
Check R701, R702, R703, R704, C701,D701 and readjust R701 (PAL) or R704 (NTSC) (HEAD SW. POINT control).
Replace the IC801.
NO
Are the amplified drum PG and drum FG signals outputted to pins (28) (PG signal about 2mVp-p) and (26) of IC701, respectively ?
YES
Replace the IC701.
NO
Are the drum PG and drum FG signals present on pins (1) and (4) of AD plug. (Figure-3.)
YES
Check the lines between AD plug and IC701.
NO
Check the drum motor and the harness between AD to ME connectors.

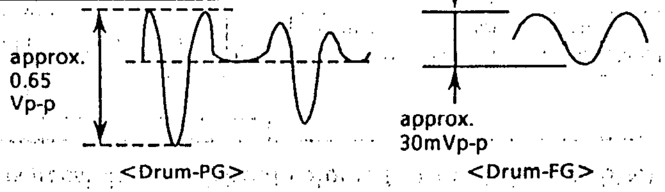
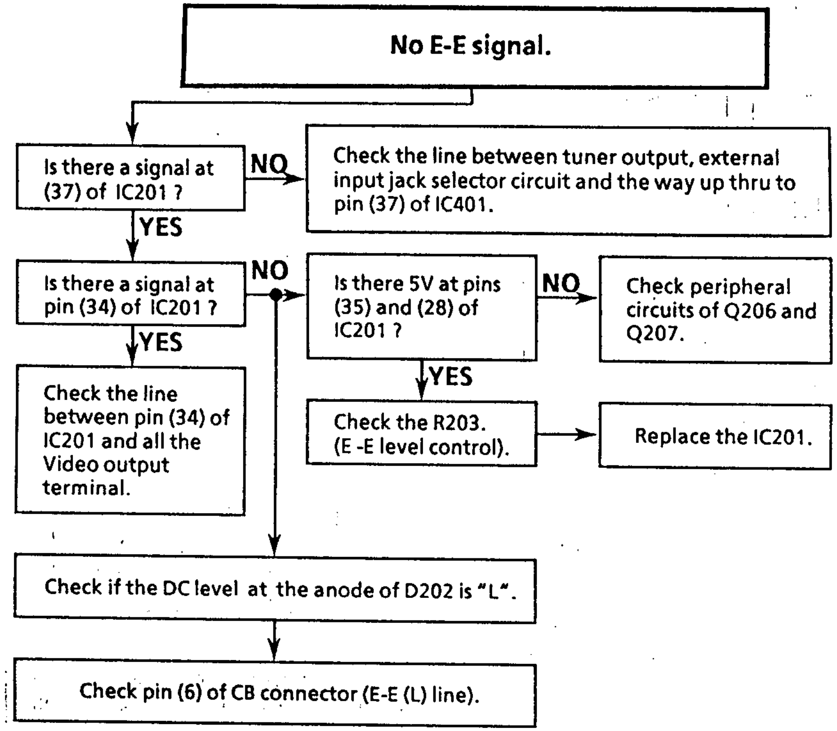
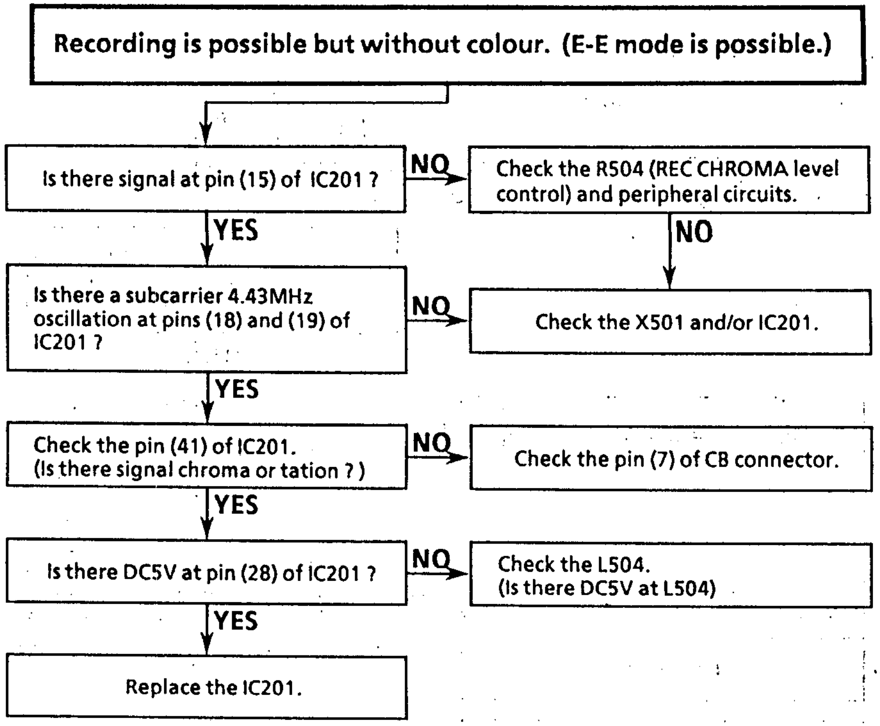


Figure-3.

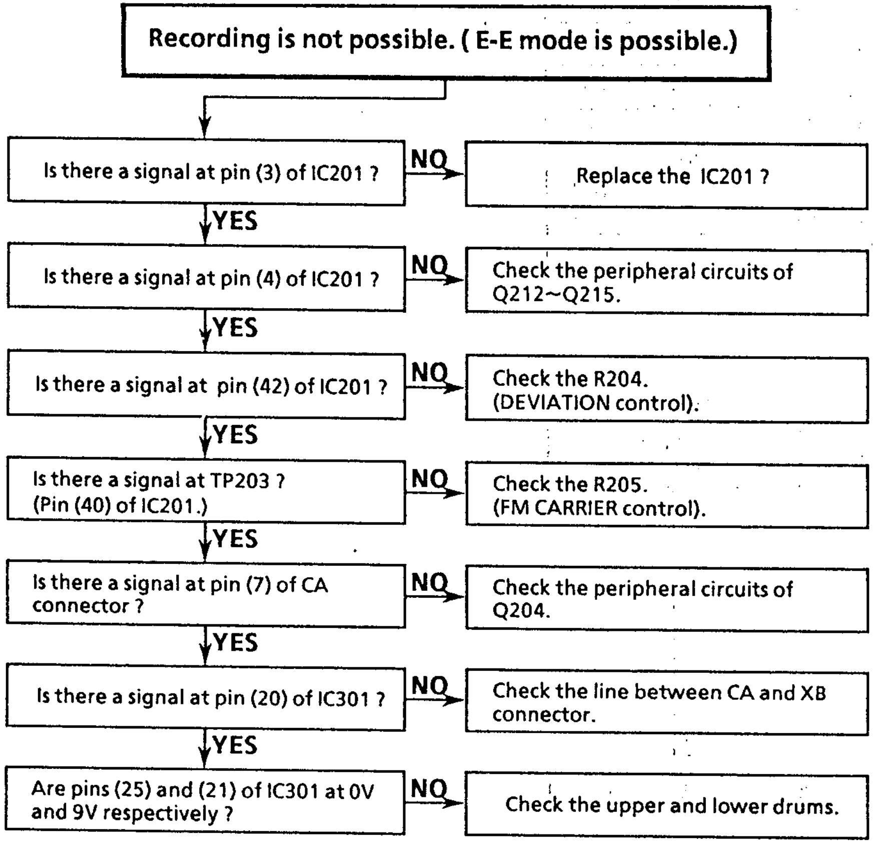
FLOW CHART NO. 17 E-E MODE TROUBLESHOOTING


No E-E signal.
Is there a signal at (37) of IC201 ?
NO
Check the line between tuner output, external input jack selector circuit and the way up thru to pin (37) of IC401.
YES
Is there a signal at pin (34) of IC201 ?
NO
Is there 5V at pins (35) and (28) of IC201 ?
NO
Check peripheral circuits of Q206 and Q207.
YES
Check the R203. (E -E level control).
Replace the IC201.
YES
Check the line between pin (34) of IC201 and all the Video output terminal.
Check if the DC level at the anode of D202 is "L".
Check pin (6) of CB connector (E-E (L) line).

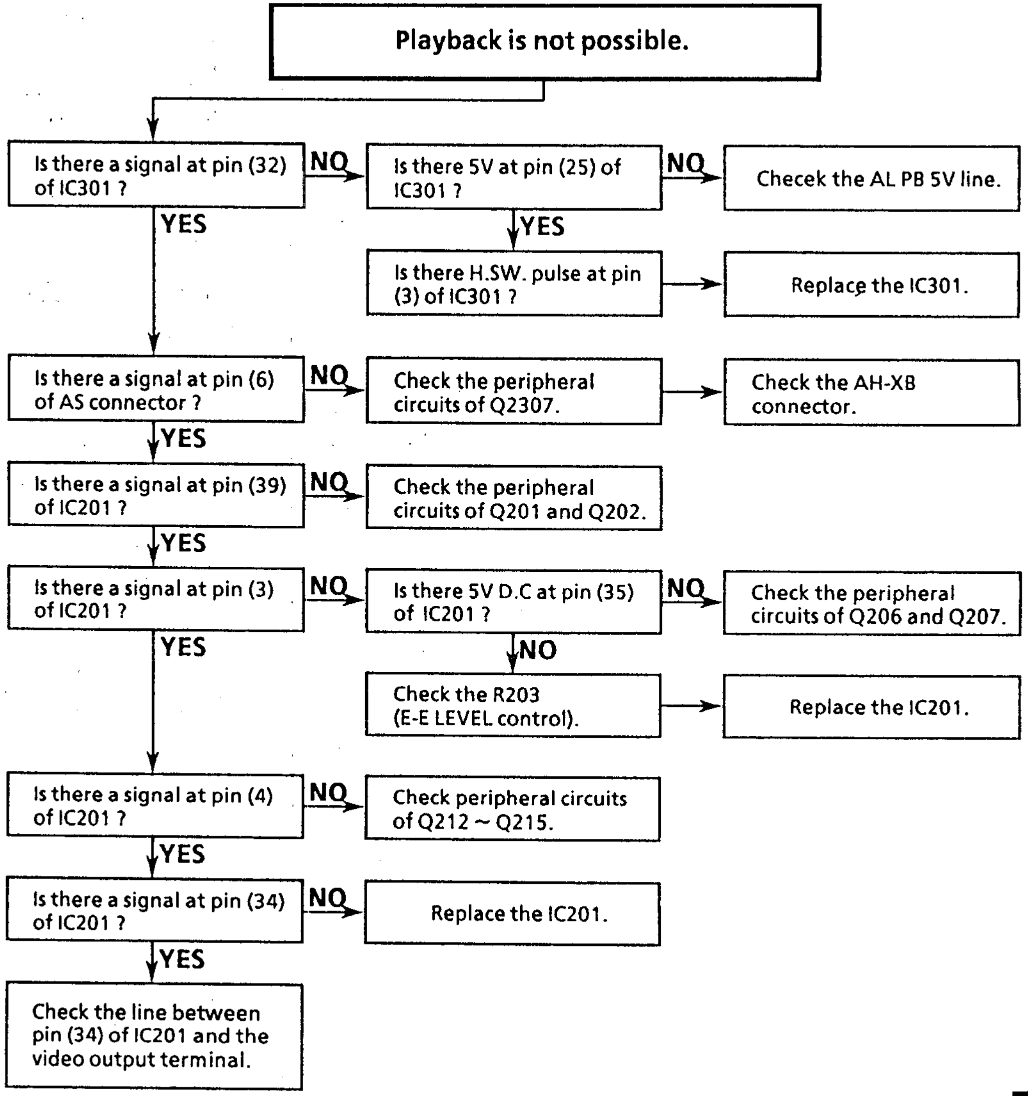
FLOW CHART NO. 18 RECORDING MODE (CHROMA) TROUBLESHOOTING


Recording is possible but without colour. (E-E mode is possible.)
Is there signal at pin (15) of IC201 ?
NO
Check the R504 (REC CHROMA level control) and peripheral circuits.
NO
Check the X501 and/or IC201.
YES
Is there a subcarrier 4.43MHz oscillation at pins (18) and (19) of IC201 ?
NO
YES
Check the pin (41) of IC201. (Is there signal chroma or tation ?)
NO
Check the pin (7) of CB connector.
YES
Is there DC5V at pin (28) of IC201 ?
NO
Check the L504. (Is there DC5V at L504)
YES
Replace the IC201.

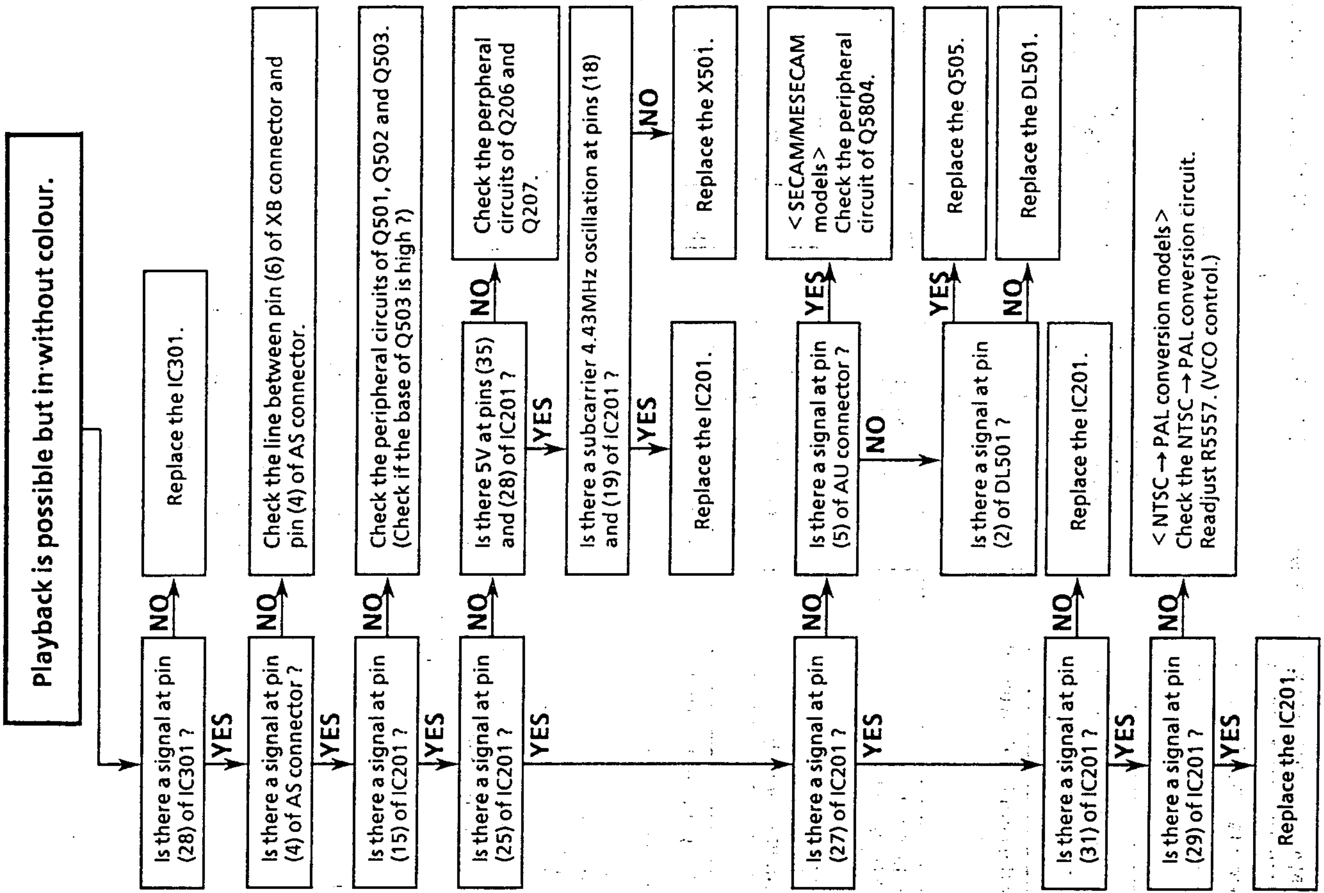
FLOW CHART NO. 19 RECORDING MODE (LUMINANCE) TROUBLESHOOTING


Recording is not possible. (E-E mode is possible.)
Is there a signal at pin (3) of IC201 ?
NO
Replace the IC201 ?
YES
Is there a signal at pin (4) of IC201 ?
NO
Check the peripheral circuits of Q212~Q215.
YES
Is there a signal at pin (42) of IC201 ?
NO
Check the R204. (DEVIATION control).
YES
Is there a signal at TP203 ? (Pin (40) of IC201.)
NO
Check the R205. (FM CARRIER control).
YES
Is there a signal at pin (7) of CA connector ?
NO
Check the peripheral circuits of Q204.
YES
Is there a signal at pin (20) of IC301 ?
NO
Check the line between CA and XB connector.
YES
Are pins (25) and (21) of IC301 at 0V and 9V respectively ?
NO
Check the upper and lower drums.

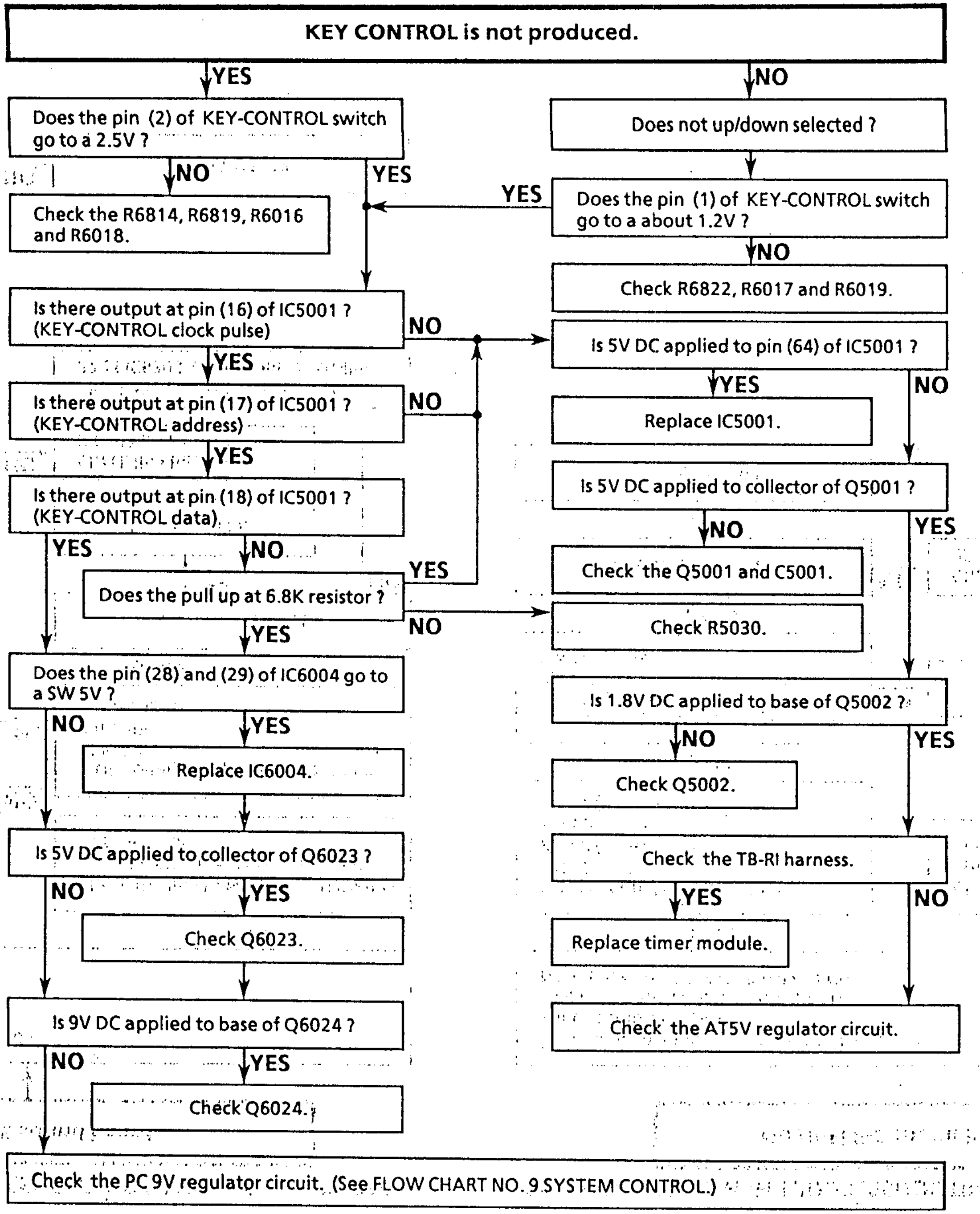
FLOW CHART NO. 20 PLAYBACK MODE (LUMINANCE) TROUBLESHOOTING


Playback is not possible.
Is there a signal at pin (32) of IC301 ?
NO
Is there 5V at pin (25) of IC301 ?
NO
Checek the AL PB 5V line.
YES
Is there H.SW. pulse at pin (3) of IC301 ?
Replace the IC301.
YES
Is there a signal at pin (6) of AS connector ?
NO
Check the peripheral circuits of Q2307.
Check the AH-XB connector.
YES
Is there a signal at pin (39) of IC201 ?
NO
Check the peripheral circuits of Q201 and Q202.
YES
Is there a signal at pin (3) of IC201 ?
NO
Is there 5V D.C at pin (35) of IC201 ?
NO
Check the peripheral circuits of Q206 and Q207.
NO
Check the R203 (E-E LEVEL control).
Replace the IC201.
YES
Is there a signal at pin (4) of IC201 ?
NO
Check peripheral circuits of Q212 ~ Q215.
YES
Is there a signal at pin (34) of IC201 ?
NO
Replace the IC201.
YES
Check the line between pin (34) of IC201 and the video output terminal.

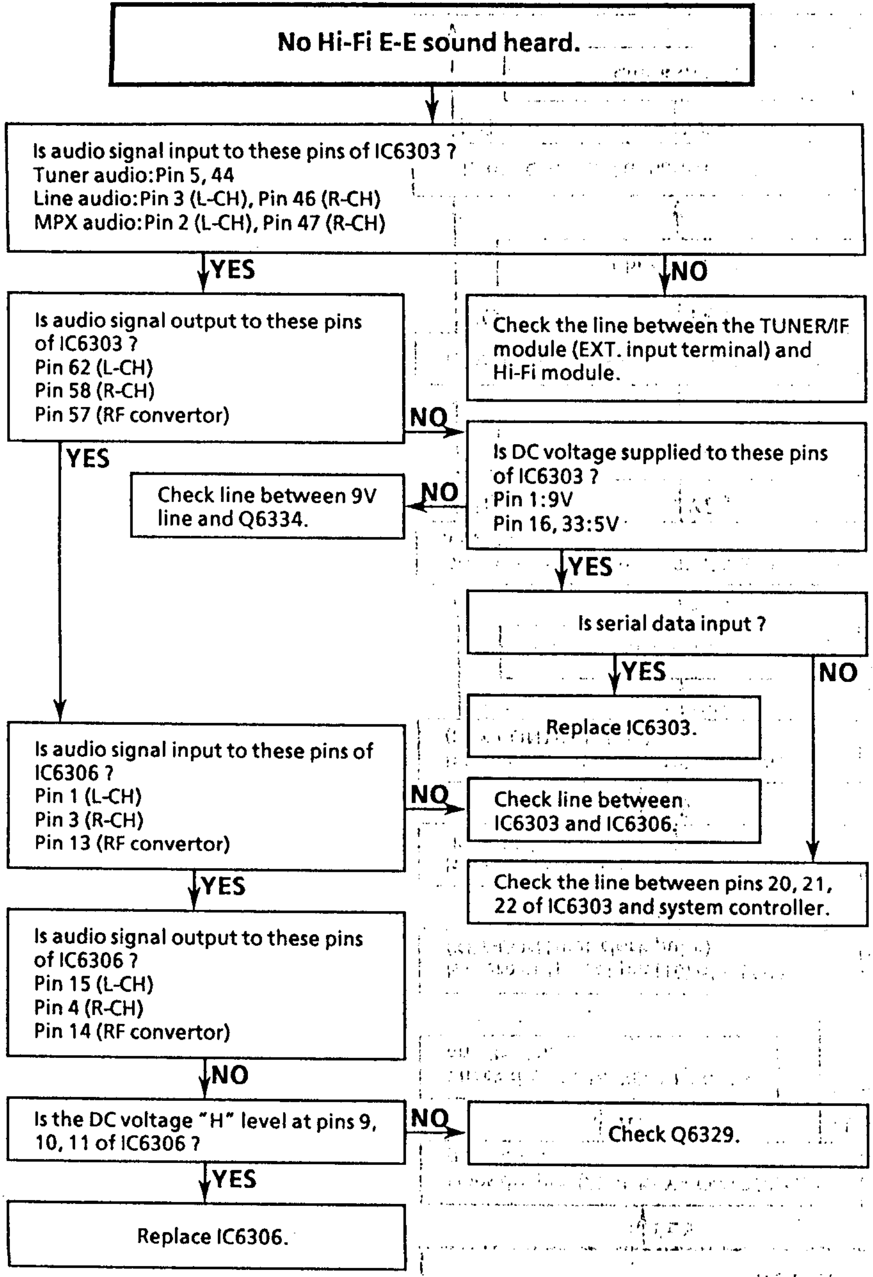
FLOW CHART NO. 21 PLAYBACK MODE (CHROMINANCE) TROUBLESHOOTING


Playback is possible but in without colour.
Is there a signal at pin (28) of IC301 ?
NO
Replace the IC301.
YES
Is there a signal at pin (4) of AS connector ?
NO
Check the line between pin (6) of XB connector and pin (4) of AS connector.
YES
Is there a signal at pin (15) of IC201 ?
NO
Check the peripheral circuits of Q501, Q502 and Q503. (Check if the base of Q503 is high ?)
YES
Is there a signal at pin (25) of IC201 ?
NO
Is there 5V at pins (35) and (28) of IC201 ?
NO
Check the perpheral circuits of Q206 and Q207.
YES
Is there a subcarrier 4.43MHz oscillation at pins (18) and (19) of IC201 ?
NO
Replace the X501.
YES
Replace the IC201.
YES
Is there a signal at pin (27) of IC201 ?
NO
Is there a signal at pin (5) of AU connector ?
YES
< SECAM/MESECAM models >
Check the peripheral circuit of Q5804.
NO
Is there a signal at pin (2) of DL501 ?
YES
Replace the Q505.
NO
Replace the DL501.
YES
Is there a signal at pin (31) of IC201 ?
NO
Replace the IC201.
YES
Is there a signal at pin (29) of IC201 ?
NO
< NTSC → PAL conversion models>
Check the NTSC → PAL conversion circuit.
Readjust R5557. (VCO control.)
YES
Replace the IC201.

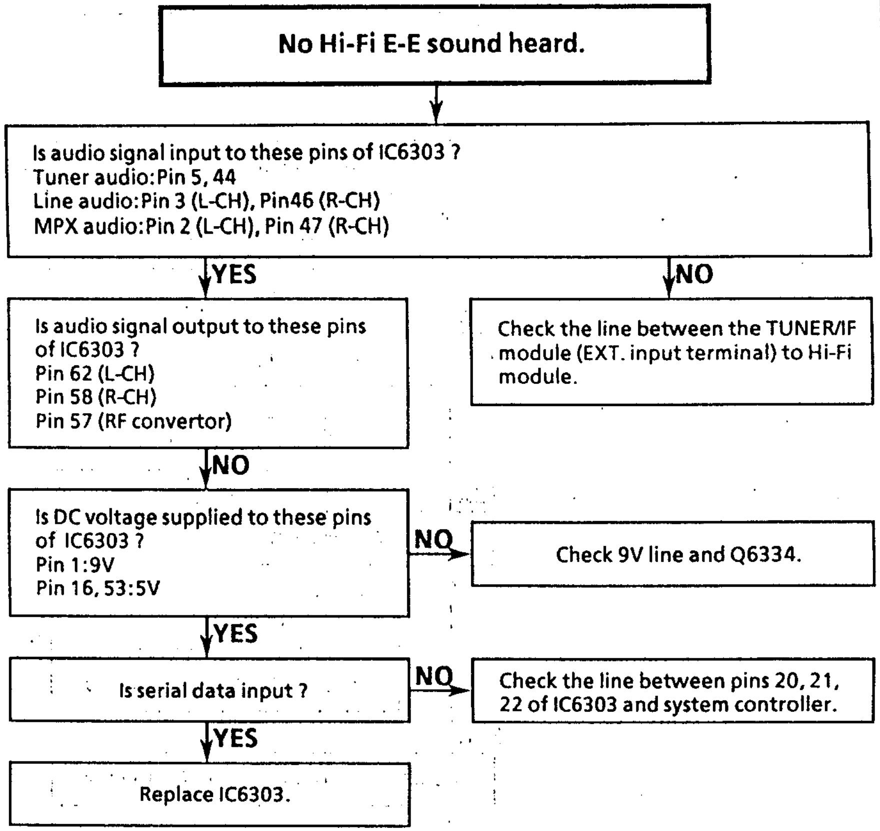
FLOW CHART NO. 22 KEY CONTROL TROUBLESHOOTING (VC-H980/H980ETS ONLY)


KEY CONTROL is not produced.
YES
NO
Does the pin (2) of KEY-CONTROL switch go to a 2.5V ?
NO
YES
Check the R6814, R6819, R6016 and R6018.
Does not up/down selected ?
YES
Does the pin (1) of KEY-CONTROL switch go to a about 1.2V ?
NO
Check R6822, R6017 and R6019.
Is there output at pin (16) of IC5001 ? (KEY-CONTROL clock pulse)
NO
YES
Is there output at pin (17) of IC5001 ? (KEY-CONTROL address)
NO
YES
Is there output at pin (18) of IC5001 ? (KEY-CONTROL data)
YES
NO
Does the pull up at 6.8K resistor ?
YES
NO
YES
Is 5V DC applied to pin (64) of IC5001 ?
YES
NO
Replace IC5001.
Is 5V DC applied to collector of Q5001 ?
NO
YES
Check the Q5001 and C5001.
Check R5030.
Does the pin (28) and (29) of IC6004 go to a SW 5V ?
NO
YES
Replace IC6004.
Is 1.8V DC applied to base of Q5002 ?
NO
YES
Check Q5002.
Is 5V DC applied to collector of Q6023 ?
NO
YES
Check Q6023.
Check the TB-RI harness.
YES
NO
Replace timer module.
Is 9V DC applied to base of Q6024 ?
NO
YES
Check Q6024.
Check the AT5V regulator circuit.
Check the PC 9V regulator circuit. (See FLOW CHART NO. 9 SYSTEM CONTROL.)

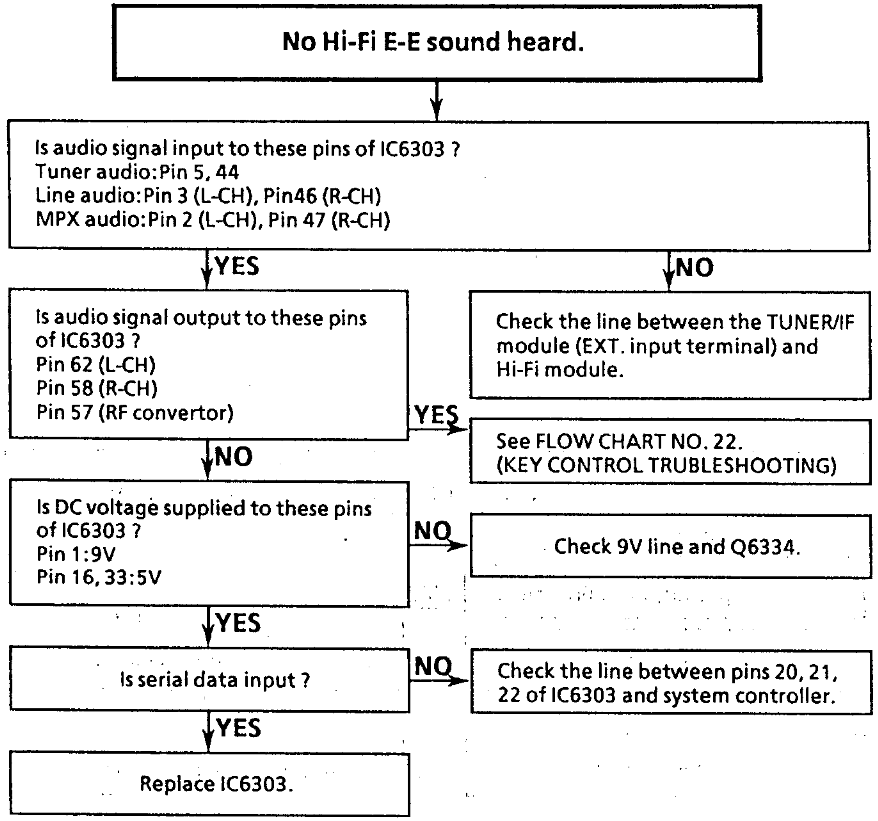
FLOW CHART NO. 23 Hi-Fi TROUBLESHOOTING (1) VC-H96/H96ETS ONLY


No Hi-Fi E-E sound heard.
Is audio signal input to these pins of IC6303 ? Tuner audio:Pin 5, 44 Line audio:Pin 3 (L-CH), Pin 46 (R-CH) MPX audio:Pin 2 (L-CH), Pin 47 (R-CH)
YES
NO
Is audio signal output to these pins of IC6303 ? Pin 62 (L-CH) Pin 58 (R-CH) Pin 57 (RF convertor)
Check the line between the TUNER/IF module (EXT. input terminal) and Hi-Fi module.
NO
YES
Is DC voltage supplied to these pins of IC6303 ? Pin 1:9V Pin 16, 33:5V
NO
Check line between 9V line and Q6334.
YES
Is serial data input ?
YES
NO
Replace IC6303.
Is audio signal input to these pins of IC6306 ? Pin 1 (L-CH) Pin 3 (R-CH) Pin 13 (RF convertor)
NO
Check line between IC6303 and IC6306.
Check the line between pins 20, 21, 22 of IC6303 and system controller.
YES
Is audio signal output to these pins of IC6306 ? Pin 15 (L-CH) Pin 4 (R-CH) Pin 14 (RF convertor)
NO
Is the DC voltage "H" level at pins 9, 10, 11 of IC6306 ?
NO
Check Q6329.
YES
Replace IC6306.

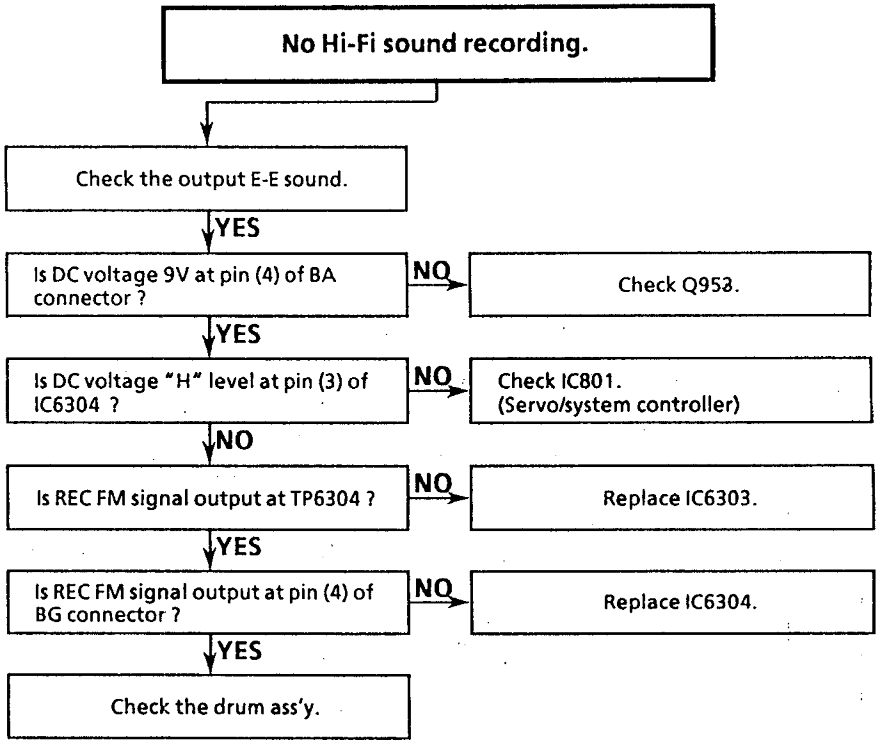
FLOW CHART NO. 23 Hi-Fi TROUBLESHOOTING (1) VC-H91/H91ETS ONLY


No Hi-Fi E-E sound heard.
Is audio signal input to these pins of IC6303 ? Tuner audio:Pin 5, 44 Line audio:Pin 3 (L-CH), Pin46 (R-CH) MPX audio:Pin 2 (L-CH), Pin 47 (R-CH)
YES
NO
Is audio signal output to these pins of IC6303 ? Pin 62 (L-CH) Pin 58 (R-CH) Pin 57 (RF convertor)
Check the line between the TUNER/IF module (EXT. input terminal) to Hi-Fi module.
NO
Is DC voltage supplied to these pins of IC6303 ? Pin 1:9V Pin 16, 53:5V
NO
Check 9V line and Q6334.
YES
Is serial data input ?
NO
Check the line between pins 20, 21, 22 of IC6303 and system controller.
YES
Replace IC6303.

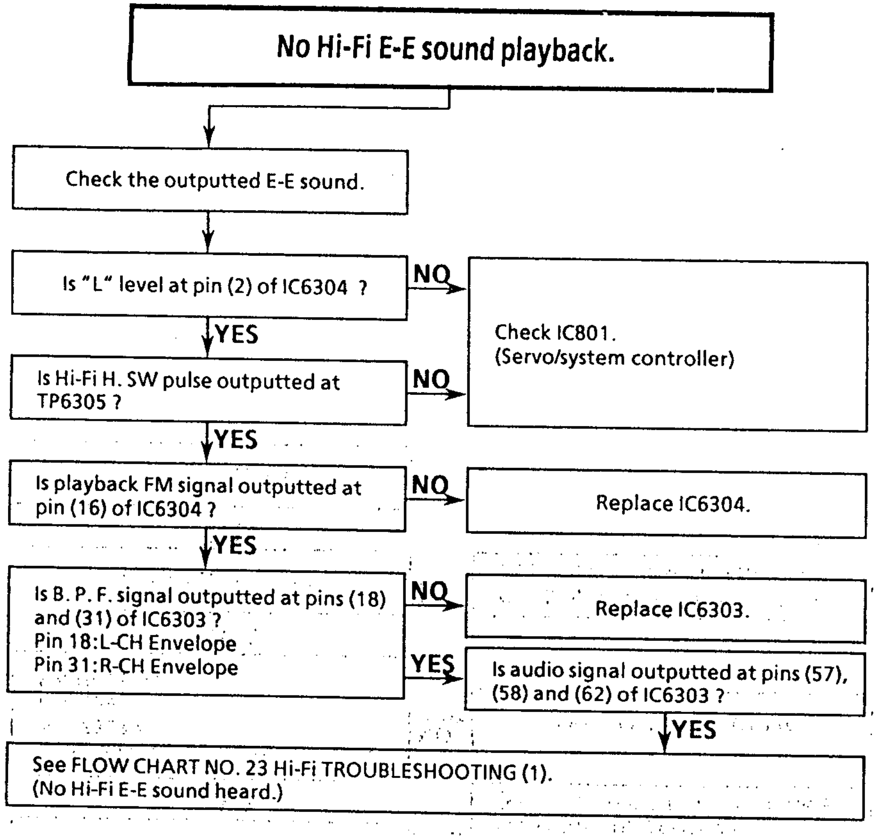
FLOW CHART NO. 23 Hi-Fi TROUBLESHOOTING (1) VC-H980/H980ETS ONLY


No Hi-Fi E-E sound heard.
Is audio signal input to these pins of IC6303 ? Tuner audio:Pin 5, 44 Line audio:Pin 3 (L-CH), Pin46 (R-CH) MPX audio:Pin 2 (L-CH), Pin 47 (R-CH)
YES
NO
Is audio signal output to these pins of IC6303 ? Pin 62 (L-CH) Pin 58 (R-CH) Pin 57 (RF convertor)
Check the line between the TUNER/IF module (EXT. input terminal) and Hi-Fi module.
YES
See FLOW CHART NO. 22. (KEY CONTROL TRUBLESHOOTING)
NO
Is DC voltage supplied to these pins of IC6303 ? Pin 1:9V Pin 16, 33:5V
NO
Check 9V line and Q6334.
YES
Is serial data input ?
NO
Check the line between pins 20, 21, 22 of IC6303 and system controller.
YES
Replace IC6303.

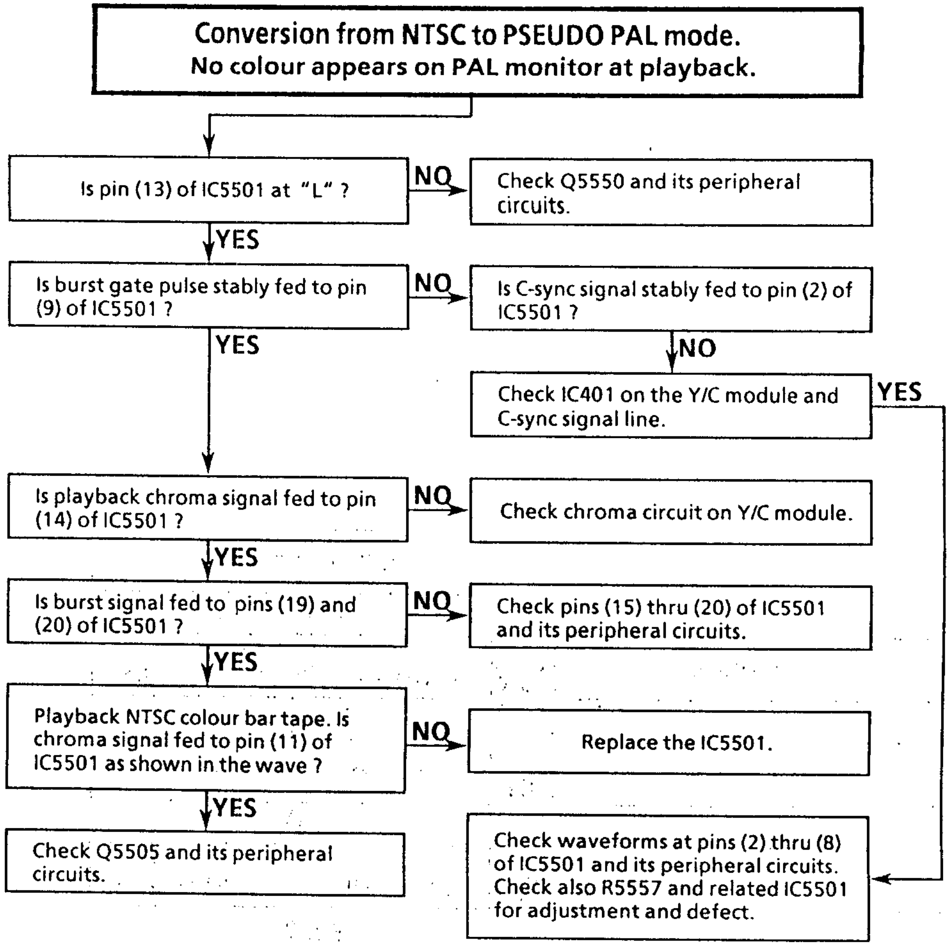
FLOW CHART NO. 24 Hi-Fi TROUBLESHOOTING (2)


No Hi-Fi sound recording.
Check the output E-E sound.
YES
Is DC voltage 9V at pin (4) of BA connector ?
NO
Check Q953.
YES
Is DC voltage "H" level at pin (3) of IC6304 ?
NO
Check IC801. (Servo/system controller)
NO
Is REC FM signal output at TP6304 ?
NO
Replace IC6303.
YES
Is REC FM signal output at pin (4) of BG connector ?
NO
Replace IC6304.
YES
Check the drum ass'y.

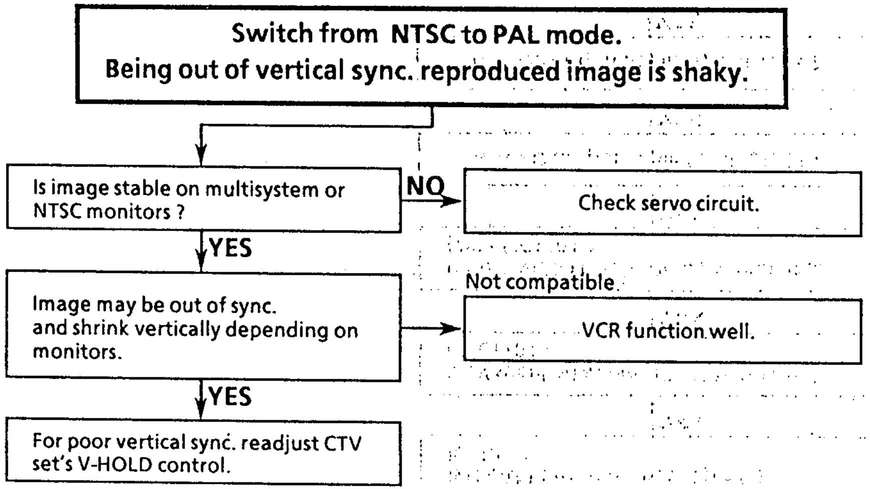
FLOW CHART NO. 25 Hi-Fi TROUBLESHOOTING (3)


No Hi-Fi E-E sound playback.
Check the outputted E-E sound.
Is "L" level at pin (2) of IC6304 ?
NO
YES
Is Hi-Fi H. SW pulse outputted at TP6305 ?
NO
Check IC801. (Servo/system controller)
YES
Is playback FM signal outputted at pin (16) of IC6304 ?
NO
Replace IC6304.
YES
Is B. P. F. signal outputted at pins (18) and (31) of IC6303 ?
Pin 18:L-CH Envelope
Pin 31:R-CH Envelope
NO
Replace IC6303.
YES
Is audio signal outputted at pins (57), (58) and (62) of IC6303 ?
YES
See FLOW CHART NO. 23 Hi-Fi TROUBLESHOOTING (1).
(No Hi-Fi E-E sound heard.)

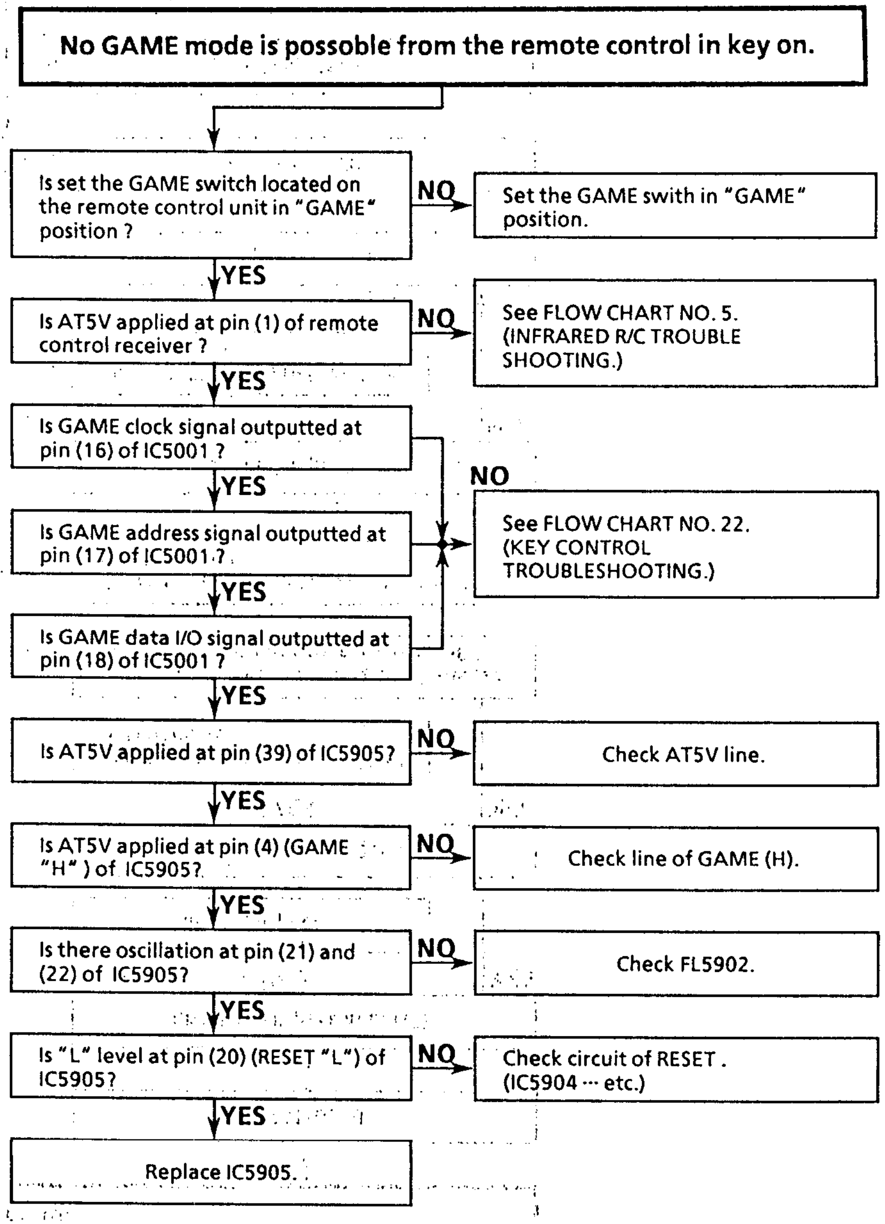
FLOW CHART NO. 26 NTSC → PSEUDO PAL CONVERSION TROUBLESHOOTING (1)


Conversion from NTSC to PSEUDO PAL mode.
No colour appears on PAL monitor at playback.
Is pin (13) of IC5501 at "L" ?
NO
Check Q5550 and its peripheral circuits.
YES
Is burst gate pulse stably fed to pin (9) of IC5501 ?
NO
Is C-sync signal stably fed to pin (2) of IC5501 ?
NO
Check IC401 on the Y/C module and C-sync signal line.
YES
YES
Is playback chroma signal fed to pin (14) of IC5501 ?
NO
Check chroma circuit on Y/C module.
YES
Is burst signal fed to pins (19) and (20) of IC5501 ?
NO
Check pins (15) thru (20) of IC5501 and its peripheral circuits.
YES
Playback NTSC colour bar tape. Is chroma signal fed to pin (11) of IC5501 as shown in the wave ?
NO
Replace the IC5501.
YES
Check Q5505 and its peripheral circuits.
Check waveforms at pins (2) thru (8) of IC5501 and its peripheral circuits. Check also R5557 and related IC5501 for adjustment and defect.

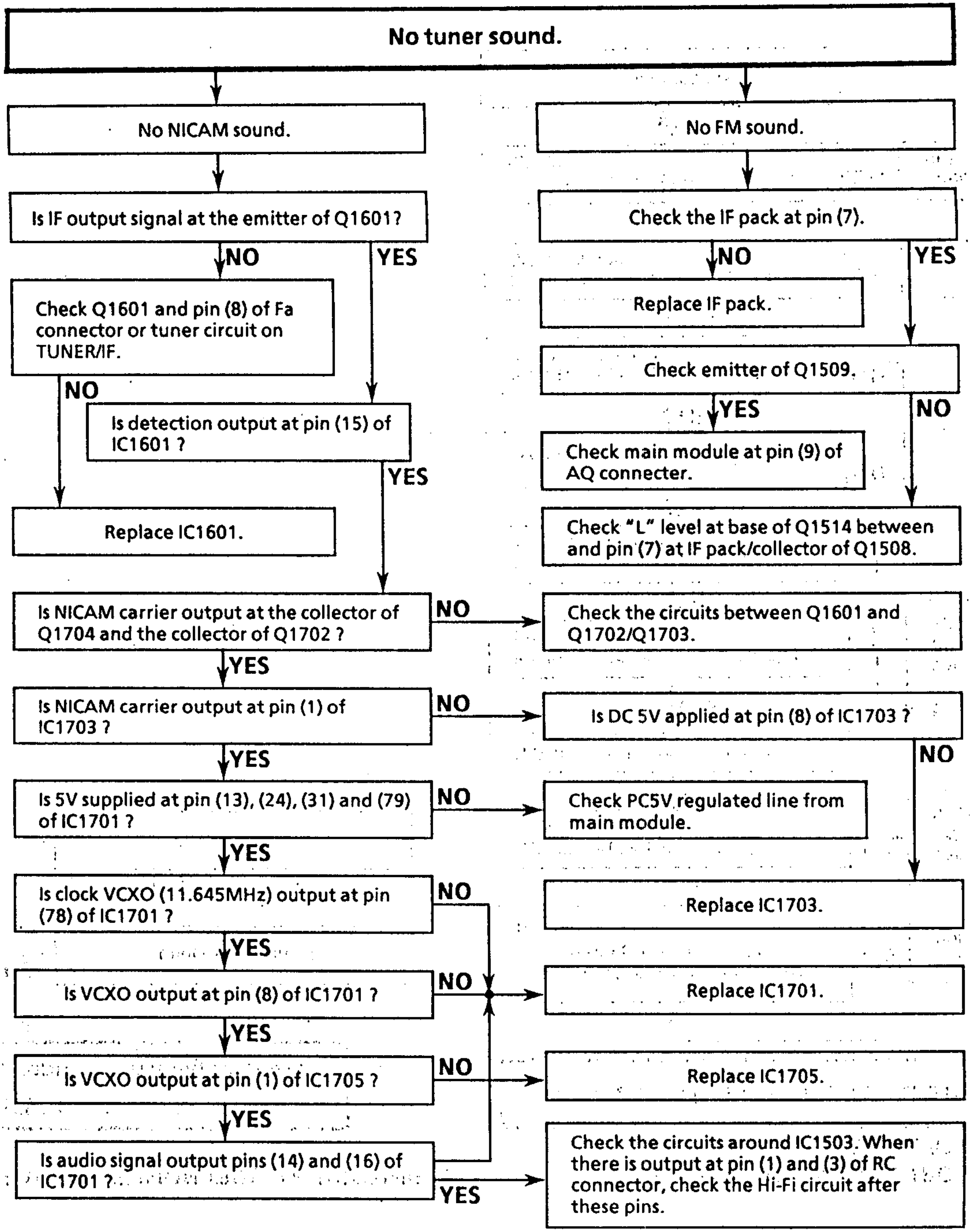
FLOW CHART NO. 27 NTSC → PSEUDO PAL CONVERSION TROUBLESHOOTING (2)


Switch from NTSC to PAL mode.
Being out of vertical sync. reproduced image is shaky.
Is image stable on multisystem or NTSC monitors ?
NO
Check servo circuit.
YES
Image may be out of sync. and shrink vertically depending on monitors.
Not compatible.
VCR function well.
YES
For poor vertical sync. readjust CTV set's V-HOLD control.

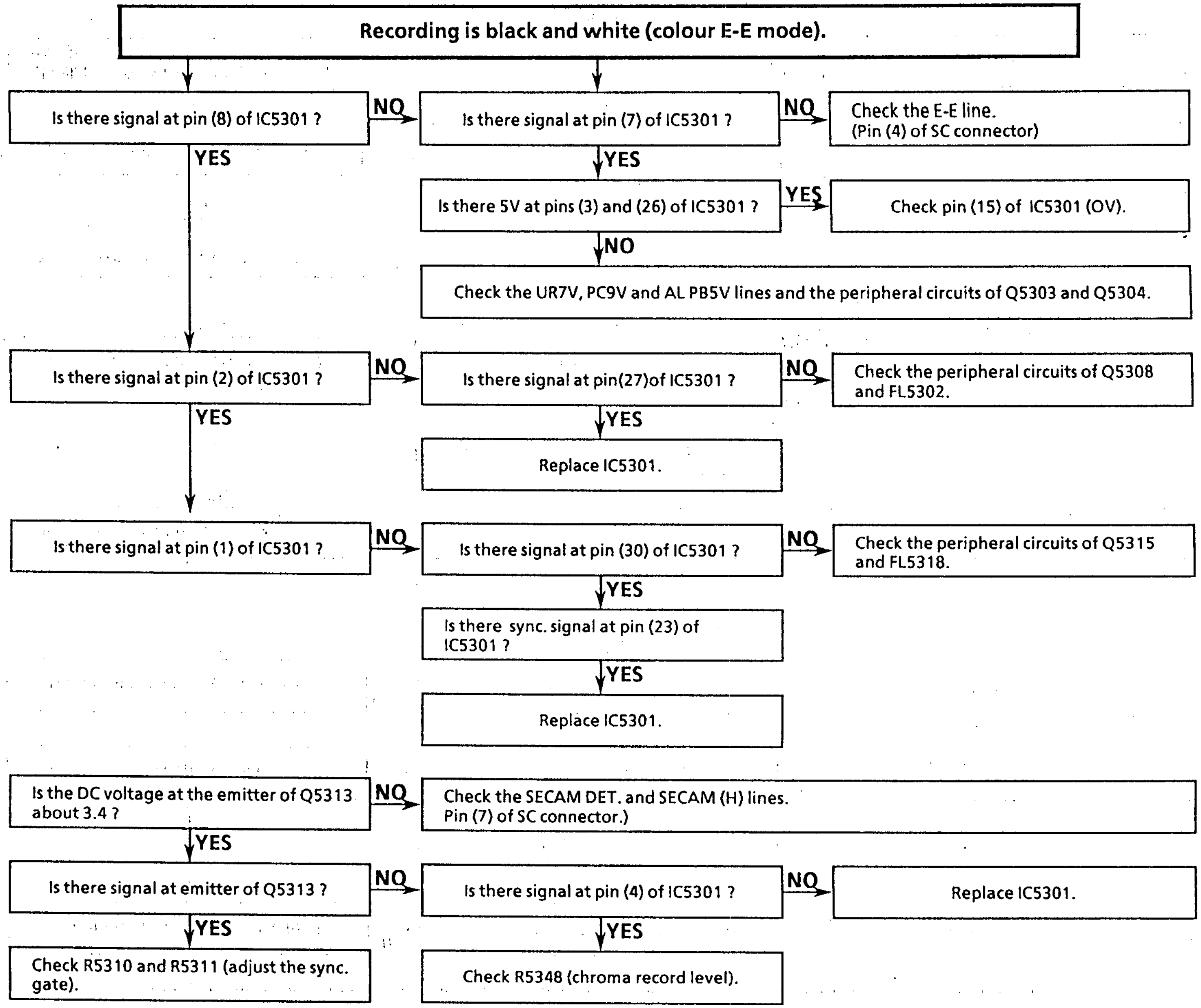
FLOW CHART NO. 28 GAME TROUBLESHOOTING VC-H96/H96ETS/H980 ONLY


No GAME mode is possoble from the remote control in key on.
Is set the GAME switch located on the remote control unit in "GAME" position ?
NO
Set the GAME swith in "GAME" position.
YES
Is AT5V applied at pin (1) of remote control receiver ?
NO
See FLOW CHART NO. 5. (INFRARED R/C TROUBLE SHOOTING.)
YES
Is GAME clock signal outputted at pin (16) of IC5001 ?
YES
Is GAME address signal outputted at pin (17) of IC5001 ?
YES
Is GAME data I/O signal outputted at pin (18) of IC5001 ?
NO
See FLOW CHART NO. 22. (KEY CONTROL TROUBLESHOOTING.)
YES
Is AT5V applied at pin (39) of IC5905?
NO
Check AT5V line.
YES
Is AT5V applied at pin (4) (GAME "H") of IC5905?
NO
Check line of GAME (H).
YES
Is there oscillation at pin (21) and (22) of IC5905?
NO
Check FL5902.
YES
Is "L" level at pin (20) (RESET "L") of IC5905?
NO
Check circuit of RESET. (IC5904 ··· etc.)
YES
Replace IC5905.

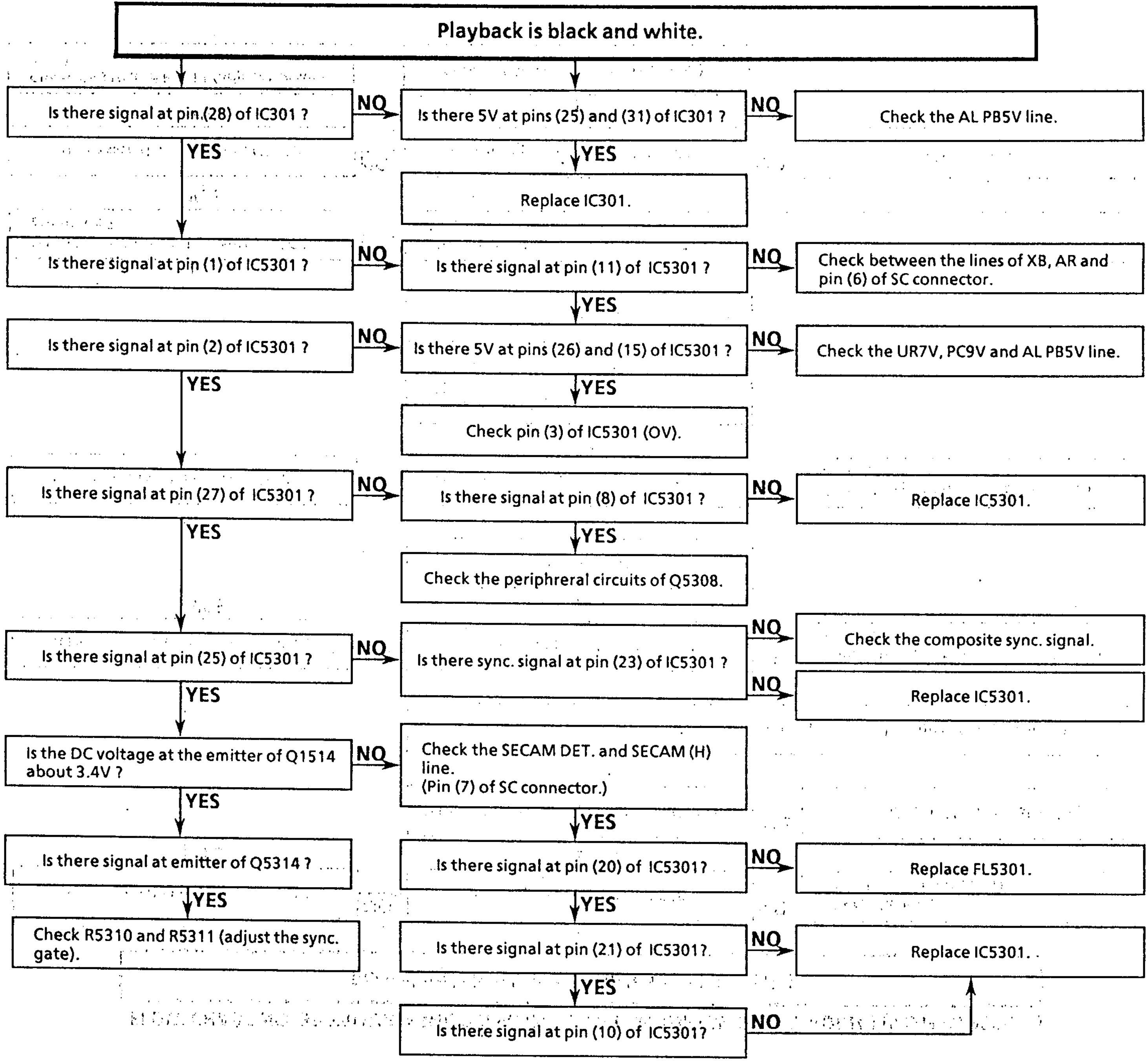
FLOW CHART NO. 29 NICAM TROUBLESHOOTING. (VC-H96/H96ETS/H980/H980ETS)


No tuner sound.
No NICAM sound.
Is IF output signal at the emitter of Q1601?
NO
YES
Check Q1601 and pin (8) of Fa connector or tuner circuit on TUNER/IF.
NO
Is detection output at pin (15) of IC1601 ?
YES
Replace IC1601.
Is NICAM carrier output at the collector of Q1704 and the collector of Q1702 ?
NO
YES
Is NICAM carrier output at pin (1) of IC1703 ?
NO
YES
Is 5V supplied at pin (13), (24), (31) and (79) of IC1701 ?
NO
YES
Is clock VCXO (11.645MHz) output at pin (78) of IC1701 ?
NO
YES
Is VCXO output at pin (8) of IC1701 ?
NO
YES
Is VCXO output at pin (1) of IC1705 ?
NO
YES
Is audio signal output pins (14) and (16) of IC1701 ?
YES
No FM sound.
Check the IF pack at pin (7).
NO
YES
Replace IF pack.
Check emitter of Q1509.
YES
NO
Check main module at pin (9) of AQ connecter.
Check "L" level at base of Q1514 between and pin (7) at IF pack/collector of Q1508.
Check the circuits between Q1601 and Q1702/Q1703.
Is DC 5V applied at pin (8) of IC1703 ?
NO
Check PC5V regulated line from main module.
Replace IC1703.
Replace IC1701.
Replace IC1705.
Check the circuits around IC1503. When there is output at pin (1) and (3) of RC connector, check the Hi-Fi circuit after these pins.

FLOW CHART NO. 30 TROUBLESHOOTING IN RECORD MODE (SECAM CHROMA) (VC-H91/H91ETS)


Recording is black and white (colour E-E mode).
Is there signal at pin (8) of IC5301 ?
NO
YES
Is there signal at pin (7) of IC5301 ?
NO
Check the E-E line.
(Pin (4) of SC connector)
YES
Is there 5V at pins (3) and (26) of IC5301 ?
YES
Check pin (15) of IC5301 (OV).
NO
Check the UR7V, PC9V and AL PB5V lines and the peripheral circuits of Q5303 and Q5304.
Is there signal at pin (2) of IC5301 ?
NO
YES
Is there signal at pin(27)of IC5301 ?
NO
Check the peripheral circuits of Q5308 and FL5302.
YES
Replace IC5301.
Is there signal at pin (1) of IC5301 ?
NO
Is there signal at pin (30) of IC5301 ?
NO
Check the peripheral circuits of Q5315 and FL5318.
YES
Is there sync. signal at pin (23) of IC5301 ?
YES
Replace IC5301.
Is the DC voltage at the emitter of Q5313 about 3.4 ?
NO
Check the SECAM DET. and SECAM (H) lines. Pin (7) of SC connector.)
YES
Is there signal at emitter of Q5313 ?
NO
Is there signal at pin (4) of IC5301 ?
NO
Replace IC5301.
YES
Check R5348 (chroma record level).
YES
Check R5310 and R5311 (adjust the sync. gate).

FLOW CHART NO. 31 TROUBLESHOOTING IN PLAYBACK MODE (SECAM CHROMA) (VC-H91/H91ETS)


Playback is black and white.
Is there signal at pin (28) of IC301 ?
NO
Is there 5V at pins (25) and (31) of IC301 ?
NO
Check the AL PB5V line.
YES
Replace IC301.
YES
Is there signal at pin (1) of IC5301 ?
NO
Is there signal at pin (11) of IC5301 ?
NO
Check between the lines of XB, AR and pin (6) of SC connector.
YES
Is there signal at pin (2) of IC5301 ?
NO
Is there 5V at pins (26) and (15) of IC5301 ?
NO
Check the UR7V, PC9V and AL PB5V line.
YES
Check pin (3) of IC5301 (OV).
YES
Is there signal at pin (27) of IC5301 ?
NO
Is there signal at pin (8) of IC5301 ?
NO
Replace IC5301.
YES
Check the periphreral circuits of Q5308.
YES
Is there signal at pin (25) of IC5301 ?
NO
Is there sync. signal at pin (23) of IC5301 ?
NO
Check the composite sync. signal.
NO
Replace IC5301.
YES
Is the DC voltage at the emitter of Q1514 about 3.4V ?
NO
Check the SECAM DET. and SECAM (H) line. (Pin (7) of SC connector.)
YES
Is there signal at emitter of Q5314 ?
YES
Check R5310 and R5311 (adjust the sync. gate).
YES
Is there signal at pin (20) of IC5301?
NO
Replace FL5301.
YES
Is there signal at pin (21) of IC5301?
NO
Replace IC5301.
YES
Is there signal at pin (10) of IC5301?
NO

REPLACEMENT OF TIMER IC5003 (E^{2}PROM)

<Servicing precautions>
When the IC5003 E^{2}PROM (VHICA93C46-1) in the timer module has been replaced, make the following reprogramming. Depending on models, the IC5003 E^{2}PROM has been factory-adjusted for its memory function. It is therefore necessary to reprogram the memory function for the model in question. Note that the servo circuit requires readjustments for the slow and still models.

- Memory function reprogramming.

1. Press the OPERATE button to turn the power on.
2. Make short-circuit between jumper pin TEST26 and TEST27 using a lead wire, on the timer module to get the unit in the TEST mode.
3. Be sure that all the flourescent display tube light up and then remove the lead wire.
4. Press the CHANNEL SET button to get the unit in the CHANNEL SET mode.
5. Mack short-circuit between jumper pin TEST26 and TEST27 again. On the module to get the unit in the reprogramming the memory function mode.
6. Using the CHANNEL (+) and (−) buttons,select the right function numbers from among I00-I19, which appear in the flourescent display tube, referring to the E^{2}PROM map.
   Press the DISPLAY button to pick up the functions (ON) and the CLEAR button to discard the functions (OFF). DISPLAY and CLEAR buttons, are located on the remote control unit.
   * When the DISPLAY button has been pressed (ON), the memory function No. starts flashing.
   * When the CLEAR button has been pressed (OFF), the memory function No.lights up.
7. Make short-circuit between jumper pin TEST26 and TEST27 to clear the TEST mode.
8. Press the CHANNEL SET button to clear the CHANNEL SET mode.
9. Make the cathode of the timer J307 and J308 on timer module short circuited, and the settings will be displayed in hexadecimal notation. Now you can see if the settings are correct.
10. Finally press the ALC button to clear the TEST mode.

Example: "ON" and "OFF" are taken as "1" and "0" respectively.
The numbers I00 to I19 are divided into five groups and each group's setting is displayed in hexadecimal notation.

I19	I18	I17	I16	I15	I14	I13	I12	I11	I10	I09	I08	I07	I06	I05	I04	I03	I02	I01	I00
0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	⇩ 4				⇩ 2				⇩ 0				⇩ 0				⇩ 0		

"42000" appears in the flourescent display tube.

- E^{2}PROM map
  (Note: "○" :ON " " :OFF)

No.	Function name					
I19	———					
I18	———					
I17	O CH					
I16	CHINESE	○			○	
I15	MPX / I^{2}C CTL	○	○		○	○
I14	SIMUL	○	○	○	○	○
I13	SAP					
I12	———					
I11	COLOUR1					
I10	COLOUR0					
I09	KARAOKE MAKER				○	○
I08	ONE SONG PLAY				○	○
I07	APMS				○	○
I06	———					
I05	V BAND					
I04	VCP					
I03	LP/EP	○	○	○	○	○
I02	COLOUR				○	○
I01	Hi-Fi	○	○	○	○	○
I00	VCR					
Displayed No.		1C00A	0C00A	0400A	1C38E	0C38E
MODEL'S		VC-H96	VC-H96ETS	VC-H91 VC-H91ETS	VC-H980	VC-H980ETS

分解和组装

上部壳盖　：松去四支紧固螺丝①。
将上部壳盖向后方滑动取下之。

底　　板　：松去四支紧固螺丝②。
将底板向后方滑动取出之。

前 面 板　：分别松去前面板与上部壳盖和底板相连的5支销卡③，取出之。

主印刷电路板　：松去一支紧固螺丝④，拆去其支座。
(VC-H980/H980ETS除外)
：松去两支紧固螺丝④'，拆去其支座。
(VC-H980/H980ETS)
松去主印刷电路支座的两支紧固螺丝⑤和两支销卡⑥。
手握主印刷电路板顶部，向上提起取出之。

天线接线端子板：松去两支紧固螺丝⑦。

调谐器／中频器印刷电路板：松去两支紧固螺丝⑧。

电源电路装置　：松去电源电路装置支座的一支紧固螺丝⑨。
松去两支紧固螺丝⑩。

前置放大器　：松去两支紧固螺丝⑪。

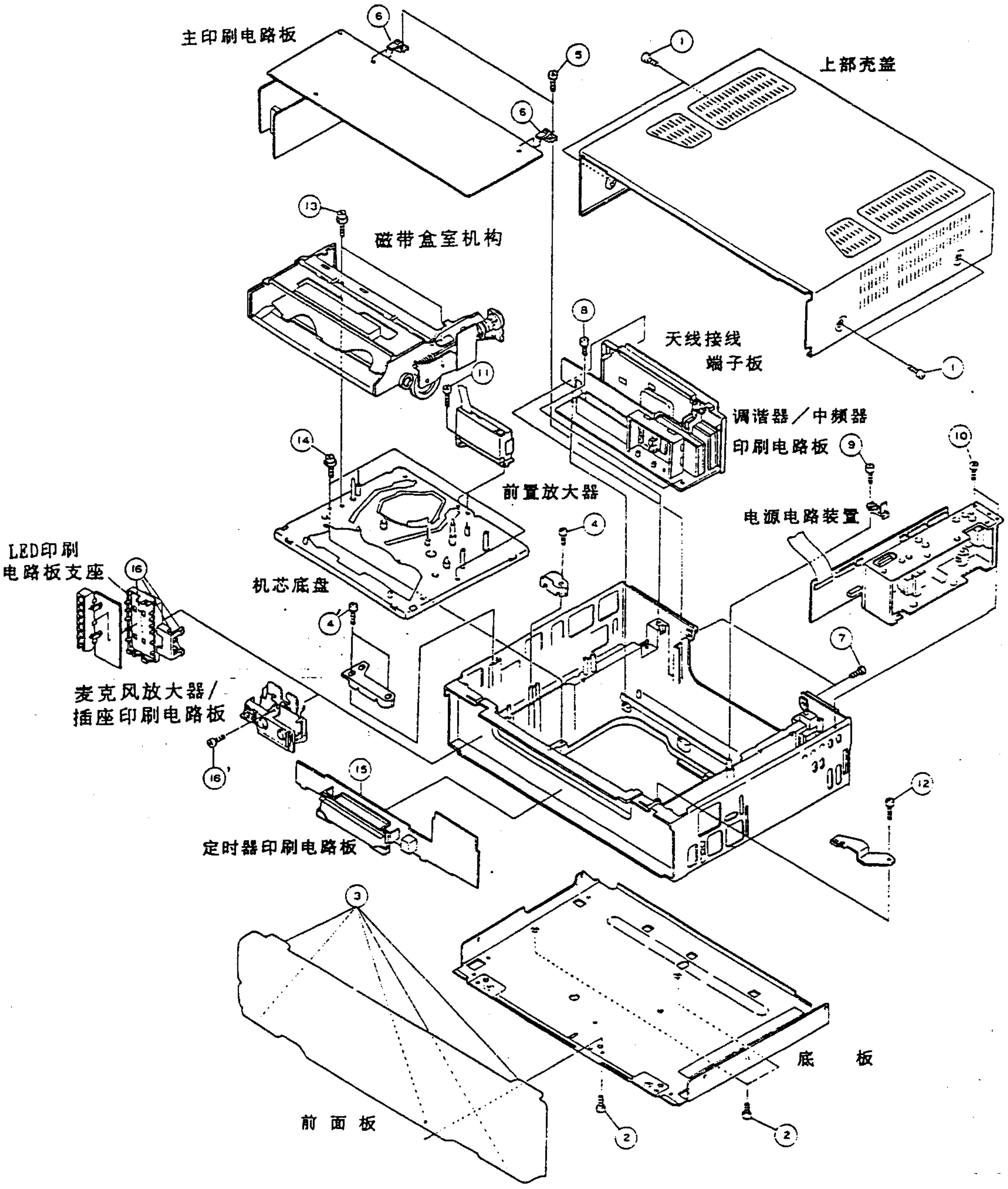
磁带盒室机构　：松去一支紧固螺丝⑫和两支紧固螺丝⑬。

机芯底盘　：松去三支紧固螺丝⑭。

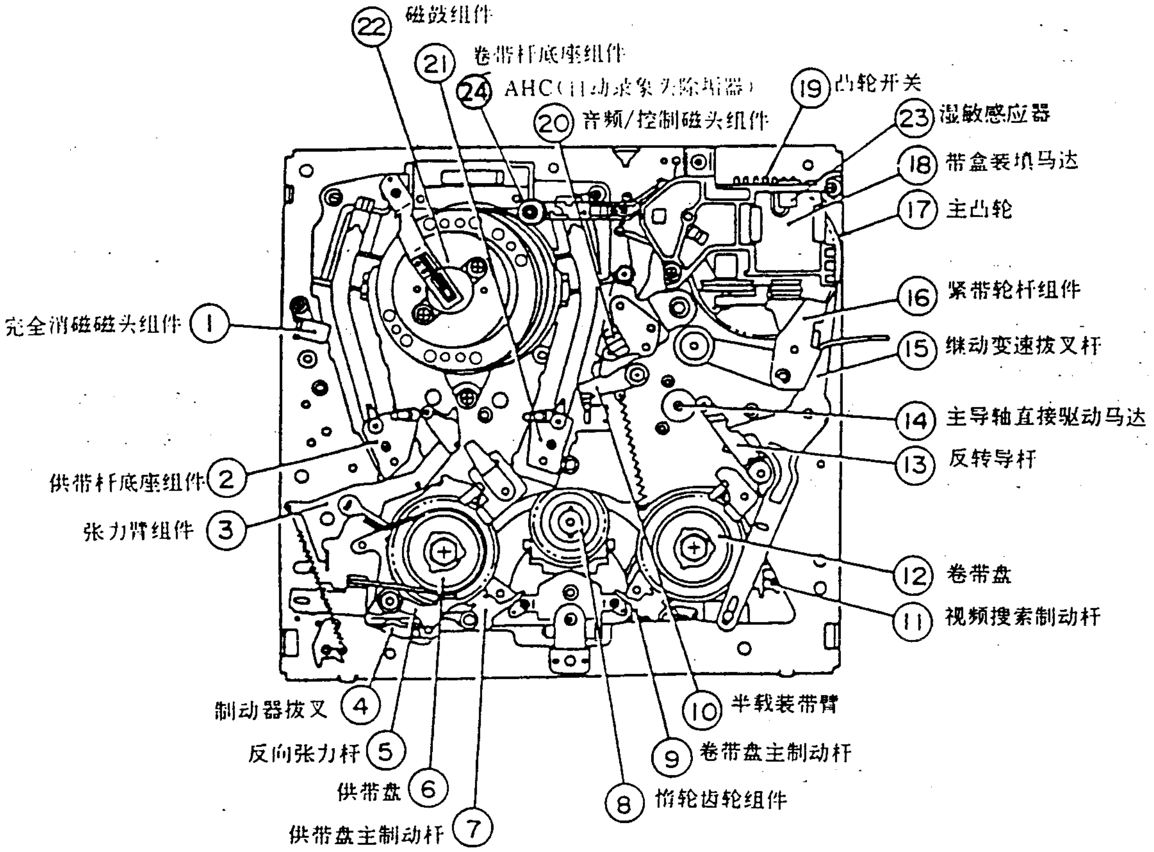
定时器印刷电路板　：松去两支销卡⑮。

LED印刷电路板支座：松去四支销卡⑯。(VC-H980/H980ETS除外)

麦克风放大器/插座印刷电路板：松去一支紧固螺丝⑯'。
(VC-H980/H980ETS)

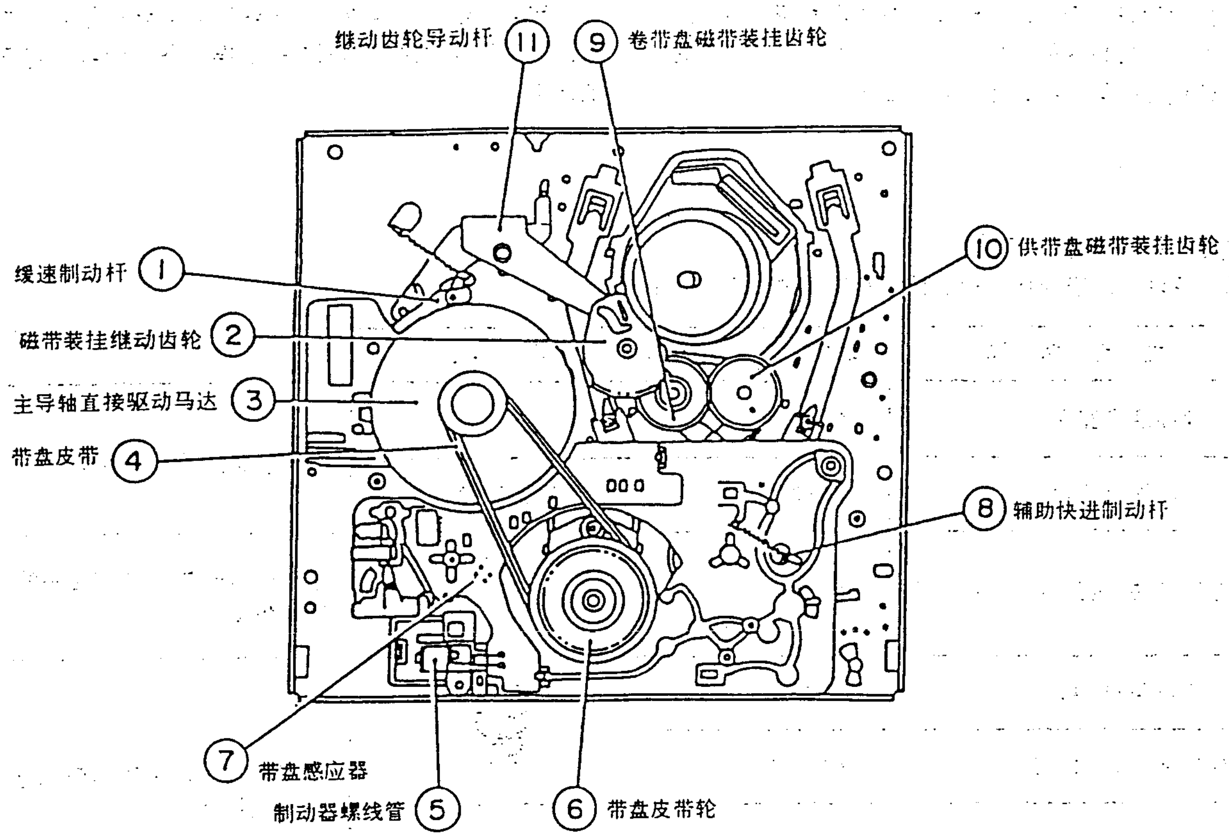

主印刷电路板
⑥
⑤
①
上部壳盖
⑥
⑬
磁带盒室机构
⑧
天线接线
端子板
①
⑪
调谐器／中频器
印刷电路板
⑨
⑩
⑭
前置放大器
电源电路装置
④
LED印刷
电路板支座
⑯
机芯底盘
④
⑦
麦克风放大器/
插座印刷电路板
⑮
⑯'
⑫
定时器印刷电路板
③
底　板
前 面 板
②
②

主要机械部件的配置(俯视)及其功能


㉒ 磁鼓组件
㉑ 卷带杆底座组件
㉔ AHC(自动录象头除垢器)
⑳ 音频/控制磁头组件
⑲ 凸轮开关
㉓ 湿敏感应器
⑱ 带盒装填马达
⑰ 主凸轮
⑯ 紧带轮杆组件
⑮ 继动变速拔叉杆
⑭ 主导轴直接驱动马达
⑬ 反转导杆
⑫ 卷带盘
⑪ 视频搜索制动杆
⑩ 半载装带臂
⑨ 卷带盘主制动杆
⑧ 惰轮齿轮组件
完全消磁磁头组件 ①
供带杆底座组件 ②
张力臂组件 ③
制动器拔叉 ④
反向张力杆 ⑤
供带盘 ⑥
供带盘主制动杆 ⑦

序号	功 能	序号	功 能
1.	完全消磁磁头组件 于录象工作状态时消去录象磁带的全部记录内容。	13.	反转导杆 于视频搜索倒带状态时，拉挂磁带，并且通过其高导杆和低导杆控制其走带高度。
3.	张力臂组件 检测走带时录象磁带的松紧程度，并与张力带一道对供带盘产生制动作用。	15.	继动变速拔叉杆 将主凸轮的运动传输至制动器拔叉，以及转为反转导杆的动作。
4.	制动器拔叉 设定制动器制动位置，或诸如停止以及再生状态时制动器应处位置。	16.	紧带轮杆组件 于走带状态中，压装磁带于主导轴。于磁带出盒动作时，其右侧突出部拔动磁带盒室控制组件离合器，使其机构将带盒推出盒室。
5.	反向张力杆 于磁带装填动作以及从再现转向视频搜索倒带动作中，以适当的程度对供带盘产生制动作用，以避免磁带的松弛。	17.	主凸轮 装挂磁带时，顺时针转动，退挂磁带时，逆时针转动，并于各种相应的工作状态，对制动器拔叉产生作用。
7.	供带盘主制动 于录象机动作停止时以及录象机处快进或倒带状态时，对供带盘产生制动作用，以防止磁带的松弛。	18.	带盒装填马达 其马达之作用在于为填装机构提供带盒填入及磁带装挂的动力。其动力通过马达皮带的传动，转为主凸轮及磁带盒室控制机构的动作。
9.	卷带盘主制动 于录象机动作停止时以及录象机处快进或倒带状态时，对卷带盘产生制动作用，以防止磁带的松弛。	19.	凸轮开关 与主凸轮同步转动，通过其内部开关，对各工作状态时主凸轮的位置进行检测控制。
10.	半载装带臂 于快进或倒带状态时，挂磁带与音频／控制(A/C)磁头相触，使之处半载装带状态。	23.	湿敏感应器 对录象机内潮湿程度进行感应监测。一旦录象机内潮湿程度超出其规定值，其感应器便停止录象机的所有机械动作。
11.	视频搜索制动杆 其制动杆一般总与卷带盘相触，以适当的程度对卷带盘产生制动作用，于视频搜索状态时，其制动杆对卷带盘施加的制动力比一般状态时更大一些。		

主要机械部件的配置(仰视)及其功能


继动齿轮导动杆 ⑪
⑨ 卷带盘磁带装挂齿轮
⑩ 供带盘磁带装挂齿轮
缓速制动杆 ①
磁带装挂继动齿轮 ②
主导轴直接驱动马达 ③
带盘皮带 ④
⑧ 辅助快进制动杆
⑦ 带盘感应器
制动器螺线管 ⑤
⑥ 带盘皮带轮

序号	功　　能	序号	功　　能
1.	缓速制动器 于缓速静止状态时，其制动器相触于与主凸轮连动的主导轴，对其轴产生适当的制动作用。	7.	带盘感应器 产生一光束射于带盘底侧的反射板上，并通过接受其反射光对带盘的转动情况进行监测。
3.	主导轴直接驱动马达 提供走带所需动力。其动力的转换由带盘皮带实现。	8.	辅助快进制动杆 于快进或倒带状态，对供带盘产生一定程度的制动作用。
4.	带盘皮带 带动带盘皮带轮转动，以驱动磁带的运转。	9.	卷带盘磁带装挂齿轮 通过磁带装挂继动齿轮，移动卷带杆底座及导辊，并将磁带环绕于磁鼓。另外，其齿轮还有传动力于供带盘磁带装挂齿轮之作用。
5.	制动器螺线管 于快进或倒带状态时，吸引抓握制动器拨叉；于停止状态时，松放其拨叉。	10.	供带盘磁带装挂齿轮 通过卷带盘磁带装挂齿轮传来的动力，移动供带杆底座及导辊，并将磁带环绕于磁鼓。
6.	带盘皮带轮 将主导轴直接驱动马达的动力经带盘惰轮传送给带盘。	11.	继动齿轮导动杆 通过磁带装挂继动齿轮，传主凸轮之运动于卷带盘磁带装挂齿轮。

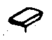
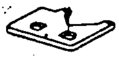
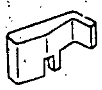
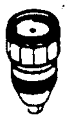
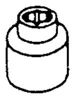
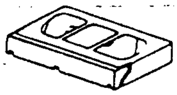
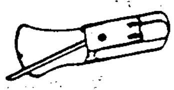
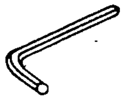
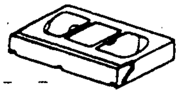
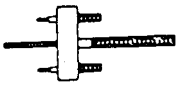
机械部件的调整、更换及装配

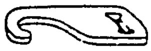
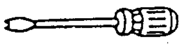
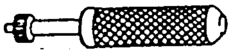
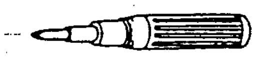
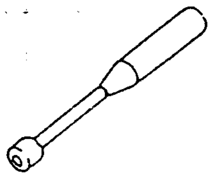
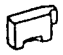
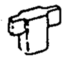
这里我们将为您介绍一些较简单的保养调试方法。这些方法与需要特殊的仪器和工具的复杂检修(例如，磁鼓的组装或更换等）相比更为容易简单。

我们相信，下表所列便于使用的工具在您为本录象机作定期保养以维持其原有的工作状态中无疑能起很大的作用。

机械部件调整必需的工具

检查修理时，应准备下列工具才能顺利进行修理工作。

序号	工具名称	零件编号	编码	形状	备注
1	带盘高度调整工具	JiGRH0002	BR		用于检查、调整带盘高度。
2	主平面调整工具	JiGMP0001	BY		
3	音频/控制磁头倾斜调整工具	JiGACH-F18	BU		用于设定音频／控制磁头的倾斜角度。
4	转矩测量计(90克)	JiGTG0090	CM		用于检查、调整供带轮和卷带轮的转动力矩。
	转矩测量计(1.2公斤)	JiGTG1200	CN		
5	转矩测量计测头	JiGTH0006	AW		
6	盒匣磁带式转矩测量计	JiGVHT-063	CZ		用于检查、调整卷带轮的转动力矩以及测量磁带反向张力。
7	张力测量计(300克)	JiGSG0300	BF		分为300克和2.0公斤两量级，用于张力测量。
	张力测量计(2.0公斤)	JiGSG2000	BS		
8	六角扳手(0.9毫米)	JiGHW0009	AE		用于松弛或紧固特制六角螺栓。
	六角扳手(1.2毫米)	JiGHW0012	AE		
	六角扳手(1.5毫米)	JiGHW0015	AE		
9	校正用磁带（PAL制式）	VROCPSV	CK		专用于机器的电路微调。
	Hi-Fi校正用磁带（PAL制式）	VROCBFFS	CB		
	校正用磁带（NTSC制式）	VROATSV	CK		
	校正用磁带（NTSC制式）	VRONBZZS			
	校正用磁带（NTSC制式）	VR9EBZCS	BP		
10	磁鼓更换工具	JiGDT-0001	BG		用于更换装置的上部磁鼓。

序号	工具名称	零件编号	编号	形状	备注
11	张力测量计接续器	JiGADP003	BK		用于张力测量计。
12	专用螺丝刀	JiGDRIVERH-4	AP		用于导辊高度调整。
13	张力带及张力板调整工具	JiGDRIVER-6	BM		用于张力带和张力板的调整。
14	扭转改锥（5公斤）	JiGTD1200	CB		用于扭转树脂制工具。标准扭转值为5公斤。
15	套管改锥	JiGDRiVER110-7	AS		用于音频/控制磁头高度和X位置的调整。
		JiGDRiVER110-4	AV		用于定位导杆的高度调整。
16	定位导杆高度调整工具	JiGGH-F18	BU		用于定位导杆的高度调整。
17	反转导杆高度调整工具	JiGRVGH-F18	BU		用于反转导杆的高度调整。

机械部件的定期保养期间

为保持机械部件的正常工作性能，务必按下表定期进行维护保养。

保养间隔 部件名称	每500小时	每1000小时	每1500小时	每2000小时	可能出现症状	备注
导辊组件	□	□	□	○	水平噪音线出现，磁头不时被磁带缠绞。	如发生不正常的旋转或显著的摇摆，就需更换该部件。
供带阻抗滚子	□	□	□	○		
供带阻抗滚子（内侧）		□		□		用高级异丙醇擦拭。
供带阻抗滚法兰	□	□	□	□		用指定清洁剂擦拭与磁带接触部份。
定位导杆	□	□	□	□		
斜杆	□	□	□	○		
视频磁头（上部磁鼓组件）	□	○□	□	○□	信号/噪声比过小，无彩色表现。	用指定清洁剂擦拭与磁带接触部份。
完全消磁磁头	□	□	□	○	色彩过淡，图象闪跳。	
音频/控制磁头	□	□	□	○	声音太小或者噪音太大。	
下部磁鼓组件	□	□	□	○	装入校正用磁带时，包络线非平坦。	
主导轴直接驱动马达	□	□	□	○	磁带不转，色彩不均。	
紧带轮	□	□	□	○	不走带，磁带松弛。	用指定清洁剂擦拭橡胶与橡胶接触部份。
带盘皮带		□		○	不走带，磁带松弛，快进或倒带时走带不正常。	
装填皮带		□		○	带盒不填入或不退出。	
带盒装填皮带		□		○		
张力带组件				○	图象水平扫描线摆动不稳。	
装填马达				○	带盒不填人或不退出。	
AHC （自动录象头除垢器）		○		○		除垢器滚轮部位的磨耗过大时，就需更换该部件。更换时，只需更换录象头除垢器滚轮组件即可。
带盘座*					见下图说明。	
*带盘座部件的保养请参见下表。						
供带/卷带盘		□△		△○	不走带，磁带松弛。	用高级异丙醇擦拭。
视频搜索制动杆				○		
惰轮齿轮组件				○	不走带。	
带盘皮带轮		□△		□○		
供带/卷带主制动杆				○	磁带松弛。	

注意：○：部件更换
□：部件清洗（用不起毛的绸布蘸异丙醇擦拭）
△：部件注油（注有标记之部件应该每1000小时用高级轴油点注润滑）

如发现所测数值超过或不及规定范围，务必对该部件进行清洗或加以更换。

磁带盒室控制机构的拆卸及安装

●盒室控制机构的拆卸

1.退出磁带盒匣，设机构于出盒状态。

2.从电源插座中拔出电源引线插头。

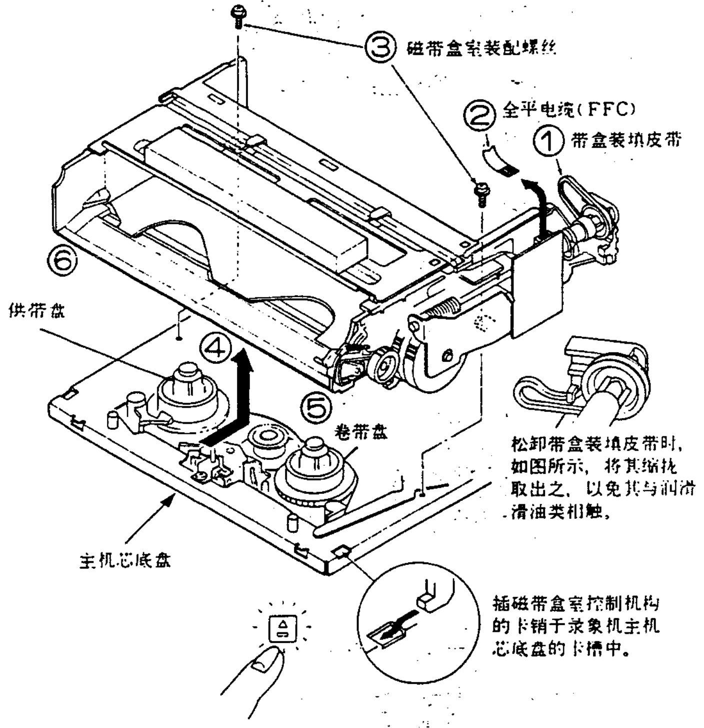
3.按下述步骤的要求顺序进行拆卸。

a)松卸带盒装填皮带①。

b)拆去全平电缆(FFC)②。

c)松去紧固磁带盒室控制机构的两支紧固螺丝③。

d)按箭头④方向移动磁带盒室控制机构，然后将其向上拉出。



松卸带盒装填皮带时，如图所示，将其缩扰取出之，以免其与润滑滑油类相触。

插磁带盒室控制机构的卡销于录象机主机芯底盘的卡槽中。

图1—1

●盒室控制机构的组装

1.在组装磁带盒室控制机构之前，先保持录象机于电源开启状态，按停止键置录象机于停止状态。然后，从电源插座中拔去电源引线插头。(录象机处于出盒状态)。

2.按拆卸步骤的相反顺序进行组装。

注意：

1.在拆卸或组装磁带盒室控制机构之前，先确认将电源引线插头拔出电源插座。

2.拆卸或组装带盒装填皮带时，注意不要让其与润滑油相触。如装填皮带上沾有油渍，务请立即清洗之。

3.拆卸或组装时，如使用带磁螺丝刀，务请注意不要让其触碰音频／控制(A/C)磁头，完全消磁(FE)磁头以及磁鼓。

4.拆卸或组装磁带盒室控制机构时，务请谨慎小心，切勿磕碰其机构，同时注意不要让工具等碰撞导向销、磁鼓等精密度较高的部件。

5.拆卸或组装磁带盒室控制机构时，均务请先将录象机置于出盒状态。

6.组装之后，填装一录象带盒于盒室控制机构之中。(如果其盒室控制机构动作正常，将磁带取出之后，直接对机构相位和盒室控制器进行精调)。

无带盒填人状态下盒室控制机构的机械动作检查

于电源开启状态时，无带盒填人状态也能对盒室控制机构的机械动作进行检查。其要点如下：

1.用手旋转卷带盘⑤(正向和反向两方向)，检查视频搜索倒带以及倒带的动作情况。如果卷带盘不转，带盘感应器动作，以使控制机构移至出盒状态。

2.触按停止(STOP)键后，机构不在其正常停止位置处停止。控制机构便转至出盒状态，然后停止。

3.于再现、视频搜索倒带以及视频搜索快进状态时，触按停止(STOP)键后，供带盘⑥仍继续旋转数秒钟，以减少控制机构移转为出盒状态过程中磁带的松弛量。在这种情况下，用手停住供带盘⑥，同时适当旋转卷带盘⑤，这样能缩短其动作时间。

蜗轮机构的更换

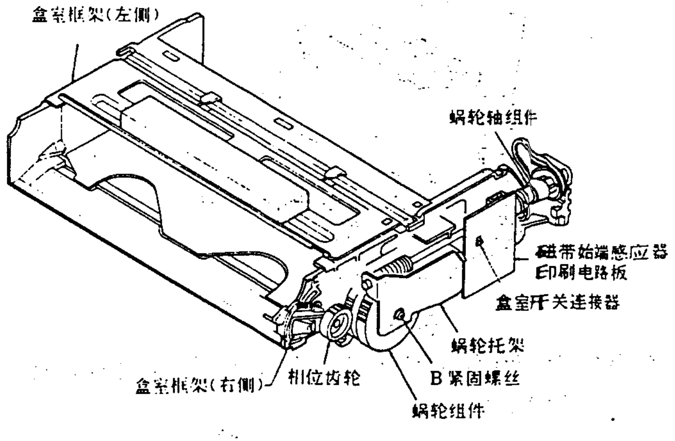


图1—2

● 蜗轮机构的拆卸

1. 松焊磁带始端感应器印刷电路板上的盒式开关连接器（第16和17）的连接，取下之。

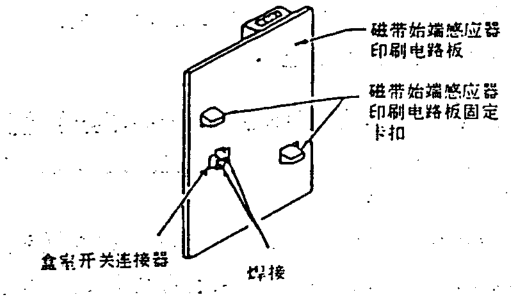

磁带始端感应器
印刷电路板
磁带始端感应器
印刷电路板固定
卡扣
盒室开关连接器
焊接

图1－3

2. 按下图箭头所示方向按住磁带始端感应器印刷电路板固定卡扣，向上提起其印刷电路板。

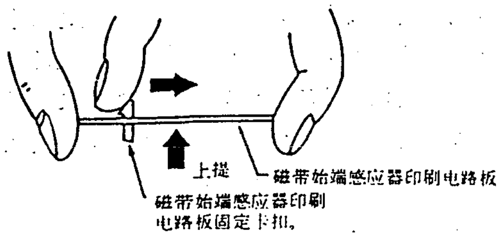

上提
磁带始端感应器印刷电路板
磁带始端感应器印刷
电路板固定卡扣。

图1－4

3. 松卸B紧固螺丝（一支），取去蜗轮托架。

注：这时蜗轮轴承极易滑出其位，因此务请小心，勿让轴承落下碰伤。

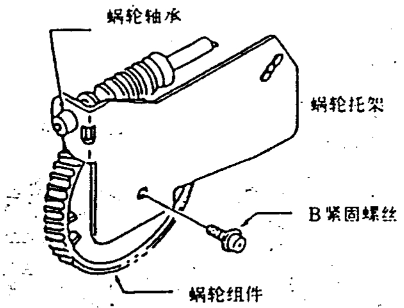

蜗轮轴承
蜗轮托架
B紧固螺丝
蜗轮组件

图1－5

4. 从盒室框架（右侧）整体卸下蜗轮轴组件，皮带轮以及带盒装填皮带。

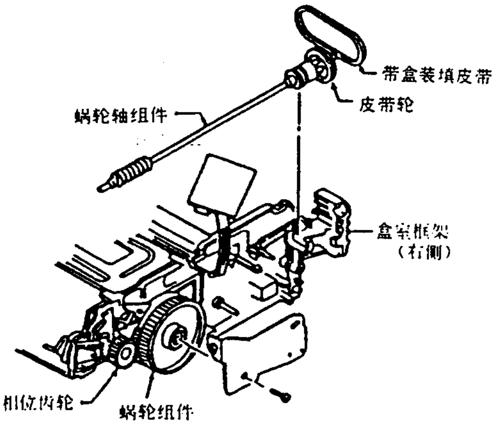

带盒装填皮带
皮带轮
蜗轮轴组件
盒室框架
（右侧）
相位齿轮
蜗轮组件

图1－6

5. 置带盒滑填板卡销于蜗轮组件正上方处（图1－7）。（带盒滑填板的夹持器于两处被锁扣，解其锁扣见图1－8所示）。

6. 向上按住转辙杆，沿由纸向外的方向拉出蜗轮组件即可。（见图1－7）。

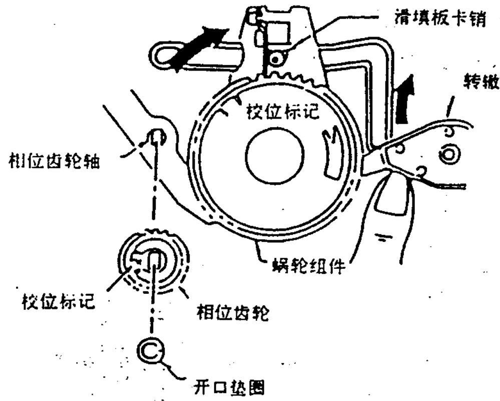

滑填板卡销
转辙杆
校位标记
相位齿轮轴
蜗轮组件
校位标记
相位齿轮
开口垫圈

图1－7

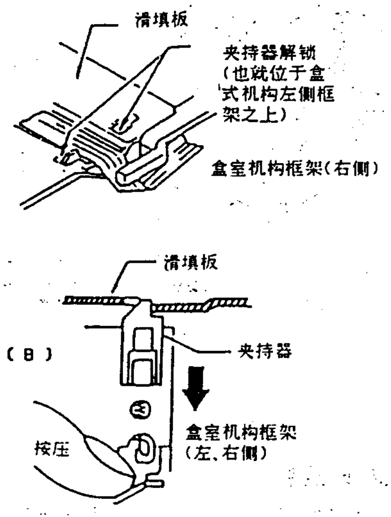

滑填板
夹持器解锁
（也就位于盒
式机构左侧框
架之上）
盒室机构框架（右侧）
滑填板
（B）
夹持器
盒室机构框架
（左、右侧）
按压

图1－8

● 蜗轮机构的组装

1. 顺时针方向旋转相位齿轮，让带盒滑填板沿带盒插入方向进至其一半位置处。（见1－9）。

2. 将蜗轮齿轮套置于盒室框架（右侧）的蜗轮轴衬上，然后将相位齿轮上的校位标记与蜗轮上的校位标记对齐。之后，取去相位齿轮上的开口垫圈以及相位齿轮，以便蜗轮的安装。

   注：此时，务请确认滑填板卡销应正好嵌于导动齿轮臂的卡槽中。

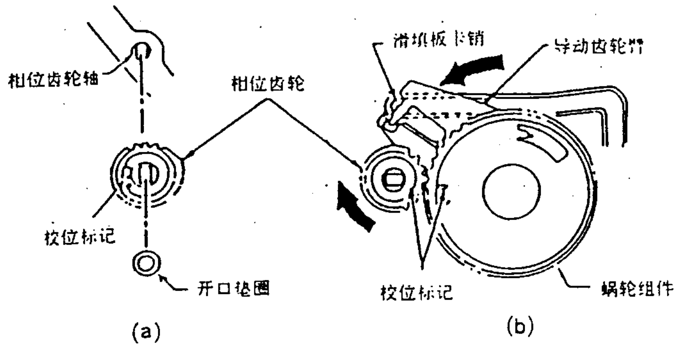

相位齿轮轴
相位齿轮
校位标记
开口垫圈
(a)
滑块板卡销
导动齿轮臂
校位标记
蜗轮组件
(b)

图1－9

3.装套皮带轮于蜗轮轴组件，并套拉好带盒装填皮带。将离合器与离合杆耦合。然后，将其整体就位于盒室框架右侧之上。

注：请切记离合器转辙杆必须处于其正确位置。因为只要其杆稍有偏差，录象机内的机械动作便会发生异常。（见90页有关项目所述）。

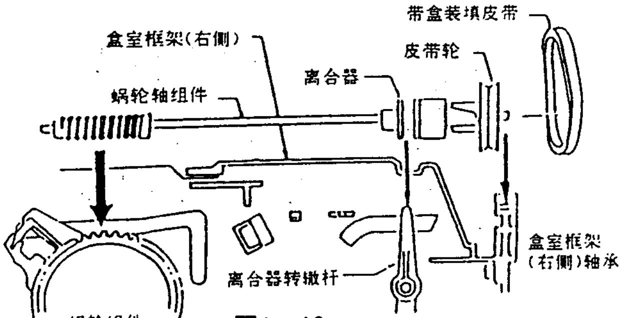

带盒装填皮带
盒室框架(右侧)
皮带轮
离合器
蜗轮轴组件
盒室框架(右侧)轴承
离合器转辙杆
蜗轮组件

图1－10

4.将蜗轮托架与蜗轮轴组件相接，然后，将其就位于盒室框架(右侧)的蜗轮轴衬上。

注：先插①于其位后，再用螺丝固定②和③。(图1－11)。

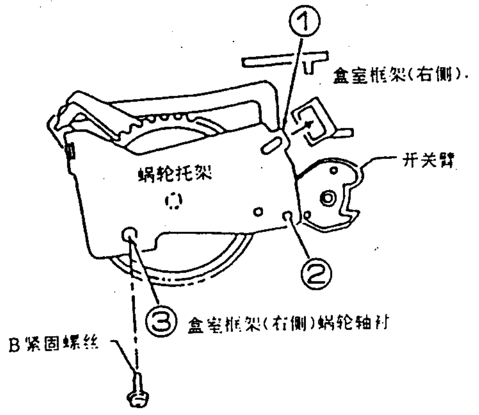

①
盒室框架(右侧)
蜗轮托架
开关臂
②
③
盒室框架(右侧)蜗轮轴衬
B紧固螺丝

图1－11

5.拧紧B紧固螺丝。

注：B紧固螺丝不得紧固过力(不得大于5.0±0.5kg·cm)，否则，树脂轴承架的螺孔中的螺纹很可能受损失效。

6.将磁带始端感应器印刷电路板就位于盒室框架(右侧)之上。

注：检查其开关连接器(第16和17)是否正确插接于盒室开关安插孔中。

7.最后，用焊锡焊接磁带始端感应器印刷电路引线于盒室开关连接器。

导动齿轮的组装

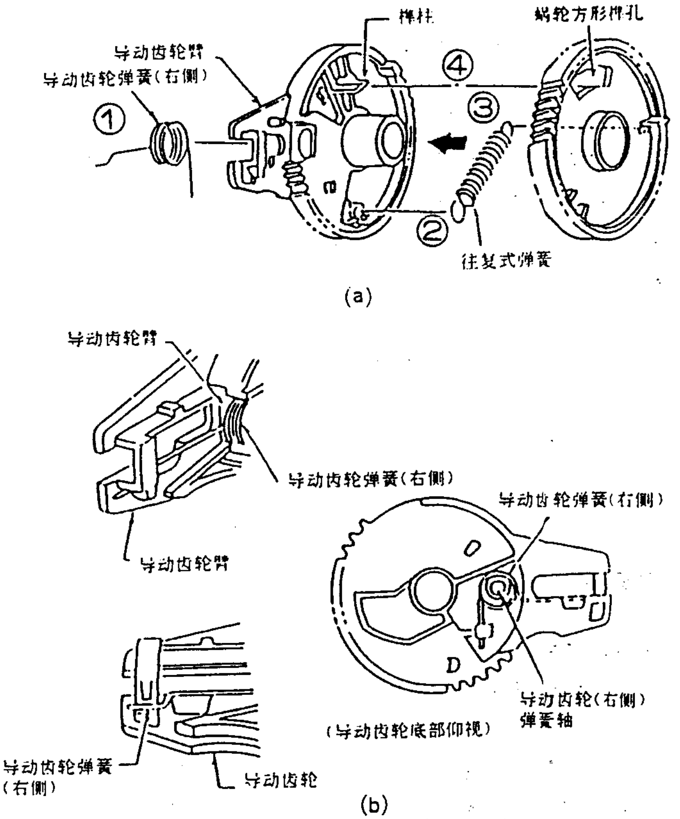

榫柱
蜗轮方形榫孔
导动齿轮臂
导动齿轮弹簧(右侧)
①
④
③
②
往复式弹簧
(a)
导动齿轮臂
导动齿轮弹簧(右侧)
导动齿轮弹簧(右侧)
导动齿轮臂
D
导动齿轮(右侧)
弹簧轴
(导动齿轮底部仰视)
导动齿轮弹簧
(右侧)
导动齿轮
(b)

图1－12

1.松放钩挂于导动齿轮(右侧)方孔中的导动齿轮弹簧(右侧)①的梢端。

2.钩挂往复式弹簧一端②于导动齿轮(右侧)的弹簧扣。

3.钩挂往复式弹簧另一端③于蜗轮的弹簧扣。

4.插导动齿轮(右侧)榫柱④于蜗轮方形榫孔之中。逆时针方向旋转蜗轮少许，利用往复式弹簧的作用，让蜗轮同轴嵌套于导动齿轮(右侧)。

带盒装填皮带的更换

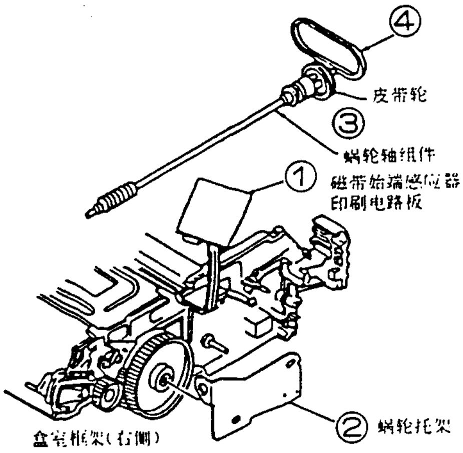

④
皮带轮
③
蜗轮轴组件
①
磁带始端感应器
印刷电路板
盒室框架(右侧)
②
蜗轮托架

图1－13

1.卸去定位于盒室框架(右侧)的磁带始端感应器印刷电路板①以及蜗轮托架②。

2.卸去蜗轮轴组件③。

3.更换一新的带盒装填皮带④。

注意：

1.切勿过力拧紧蜗轮托架板上的B紧固螺丝。其规定紧固力矩为5.0±0.5kg·cm。

2.更换完毕，检查皮带上是否沾有润滑油。如沾有之，则须用规定清洗剂清洗其油渍。

3.检查离合器转辙杆是否就位于其规定位置，其机械动作是否正常。

离合器转辙杆的检查

●转辙杆的检查

将盒室机构从主机芯底盘拆离或更新安置于主机芯底盘时，均须先置其于出盒状态。

检查盒室机构中诸如离合器转辙杆类的每个部件均就位于其规定之处，否则，便很可能引起机械误动作的产生。

注意：

盒室机构各部件之规定位置如图1－14所示。

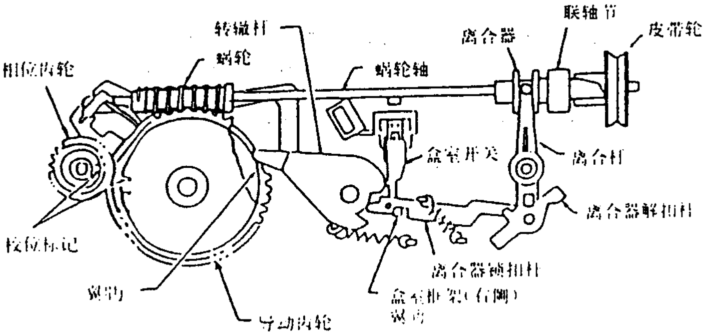
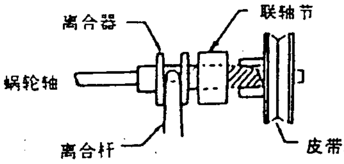

转辙杆
蜗轮
相位齿轮
蜗轮轴
离合器
联轴节
皮带轮
盒室开关
离合杆
离合器解扣杆
校位标记
离合器锁扣杆
翼肋
盒室框架(右侧)
翼肋
导动齿轮

图1－14

1.首先，先检查离合器转辙杆的梢端是否卡扣于导动齿轮(右侧)的翼肋。

2.然后检查盒室框架(右侧)的翼肋是否卡嵌于离合器锁扣杆的凹槽中。

3.最后，检查离合杆与离合器的位置关系以及离合器与皮带轮的位置关系均是否符合图1－15所示的规定要求。


离合器
联轴节
蜗轮轴
离合杆
皮带轮

检查离合器是否通过其
联轴节与皮带轮啮合。

图1－15

●转辙杆的重新设置

离合器、或离合器转辙杆和离合器锁扣杆处未锁扣状态时，请按下述步骤重新设置之。

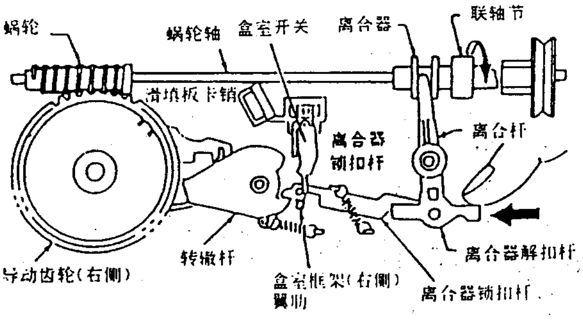

蜗轮
蜗轮轴
盒室开关
离合器
联轴节
滑填板卡销
离合器
锁扣杆
离合杆
导动齿轮(右侧)
转辙杆
盒室框架(右侧)
翼肋
离合器解扣杆
离合器锁扣杆

图1－16

1.按图1－16中旋转箭头所示方向(顺时针)旋转联轴节，移动带盒滑填板，直至滑填板卡销移至滑填板凹槽底部为止(带盒填装状态)。

注：带盒滑填板装有一锁扣装置。移动此滑填板时，应先解除位于盒室框架(左侧和右侧)之上的锁扣。

2.滑填板移至图1－16所示位置后，用手指沿图中直线箭头所示方向按压离合器解扣杆，让离合器锁扣杆紧扣盒室框架(右侧)的翼肋。

3.然后，再逆时针方针旋转联轴节，让带盒滑填板上升至带盒插入口平面，同时往复式弹簧处于张拉状态为宜。

注：滑填板移至带盒插入口平面时，设有锁扣该滑填板之必要。

解扣杆的拆卸和组装

●解扣杆的拆卸

1. 将滑填板降至带盒填入就位状态之位置。(顺时针旋转蜗轮轴上的联轴节，让滑填板下移)。

注：移动滑填板前，先解除其锁扣。

2. 用手稍微撑开盒室框架两侧(左侧和右侧)，让滑填板两侧夹持器(左侧和右侧)的销笋脱离盒室框架两侧的榫孔。

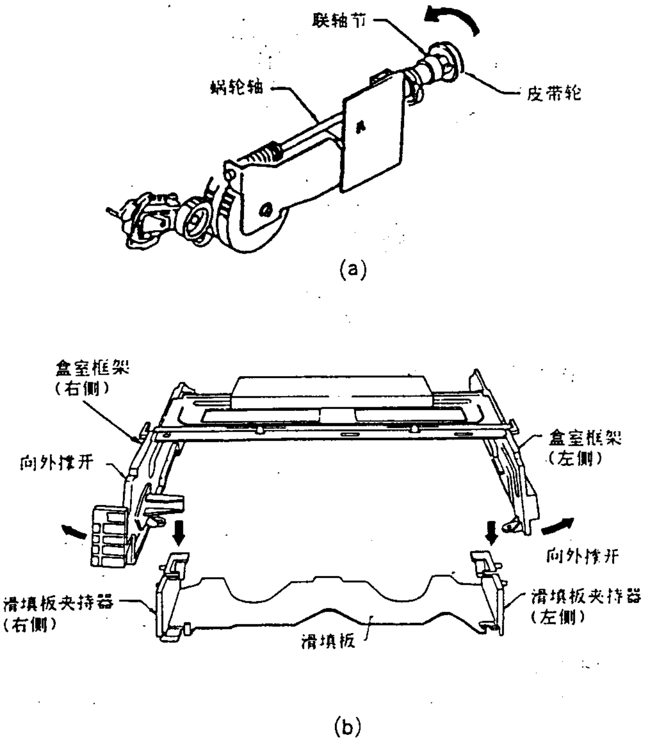

联轴节
蜗轮轴
皮带轮
(a)
盒室框架
(右侧)
向外撑开
盒室框架
(左侧)
向外撑开
滑填板夹持器
(右侧)
滑填板
滑填板夹持器
(左侧)
(b)

图1－17

3. 上提滑填板夹持器(右侧)2毫米左右，用一尖头螺丝刀顶压夹持器上两支锁键，让滑填板脱离夹持器。这时，务请注意不要损伤其锁键。

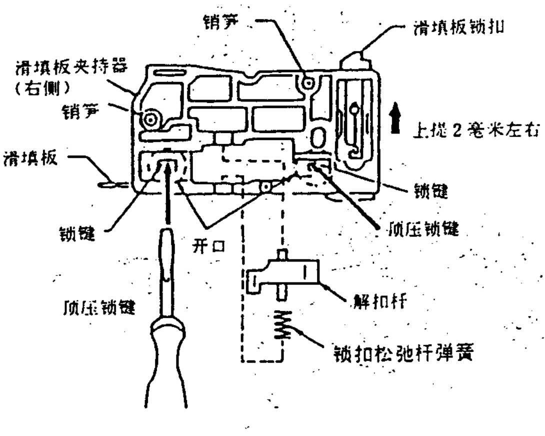

销笋
滑填板锁扣
滑填板夹持器
(右侧)
销笋
上提2毫米左右
滑填板
锁键
锁键
顶压锁键
开口
顶压锁键
解扣杆
锁扣松弛杆弹簧

图1－18

4. 从滑填板夹持器(右侧)上取下解扣杆。

●解扣杆的组装

1. 按拆卸解扣杆步骤的相反顺序进行组装。(见图1－17和图1－18)。
2. 将解扣杆就位于滑填板夹持器(右侧)。
3. 下移滑填板，以使滑填板夹持器(右侧)上的两支锁键与滑填板上的两个开口对齐。
4. 用手稍微撑开盒室框架两侧，将滑填板两侧夹持器(右侧和左侧)的销笋分别扣入盒室框架(右侧和左侧)的榫孔中。

   注：检查滑填板两侧夹持器(右侧和左侧)的销笋是否分别正确地扣入盒室框架两侧(右侧和左侧)的榫孔中；导动齿轮臂是否充分地与滑填板夹持器啮合。

5. 逆时针方向旋转联轴节，让带盒滑填板升至带盒插入口平面。

无盒室控制机构的走带测试

1. 插电源引线插头于电源插座。
2. 开启电源开关。
3. 用手打开磁带盒匣端口之盖①。
4. 用胶带②张贴之以保持其开盖状态。
5. 置其于主机芯中的走带机构。
6. 压一重物④于磁带之上，以防盒匣的翘起。
7. 作胶带的走带测试。

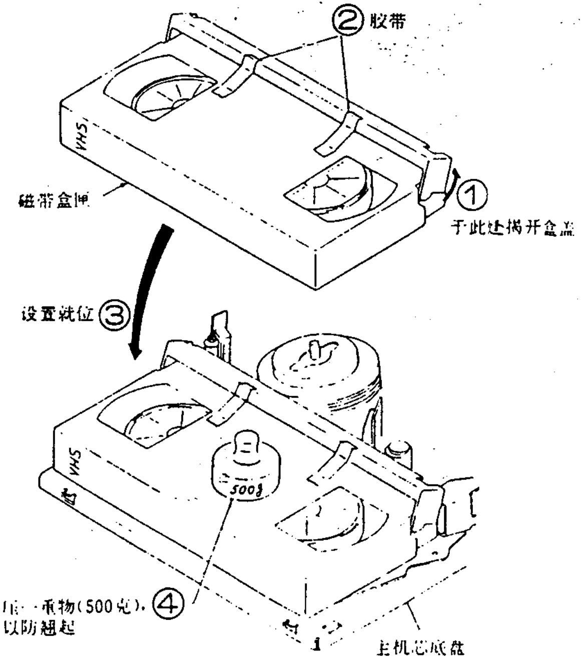

②胶带
VHS
磁带盒匣
①
于此处揭开盒盖
设置就位③
VHS
500g
压一重物(500克)，④
以防翘起
主机芯底盘

图1－19

注：压其重物不得超过500克。

带盘座的拆装与高度调整

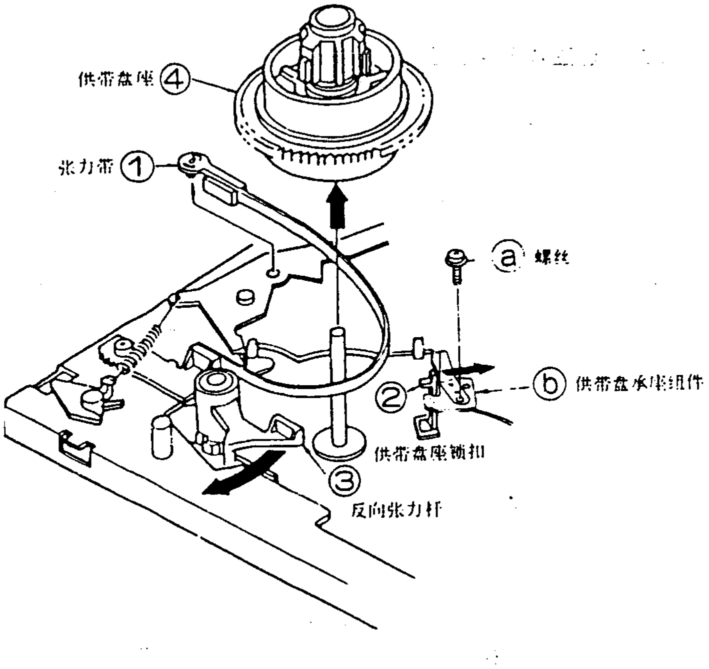
1. 拆去磁带盒室控制机构。
2. 设录象机于无带盒填入的再生状态。拔去电源引线插头。
3. 置惰轮齿轮于其中心位置(空档位置)。

● 供带盘座的拆卸

1. 拆下张力带①。(注意：切勿让其弯折扭曲)。
2. 松去螺丝ⓐ，拆去供带盘承座组件ⓑ。
3. 松去供带盘锁扣②以及反向张力杆③。
4. 向上直拉供带盘座④，取出之。

注意：

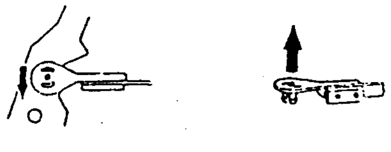
1. 切勿弯折扭曲张力带。
2. 检查调整张力杆位置(见第97页有关项目所述)。
3. 切勿损坏磕伤供带盘座上的齿轮和惰轮齿轮。
4. 拆卸时，应按图中箭头所示方向按压张力带。(见图1－20(b))。


供带盘座④
张力带①
ⓐ螺丝
ⓑ供带盘承座组件
②
供带盘座锁扣
③
反向张力杆

(a)

注意：

拆卸时，应按图中箭头所示方面按压张力带，以免使锁扣变形。



(b)

图1—20

● 卷带盘座的拆卸

1. 松去螺丝ⓒ，拆去卷带盘承座。
2. 松去卷带盘座锁扣①。
3. 向上直拉卷带盘座②，取出之。

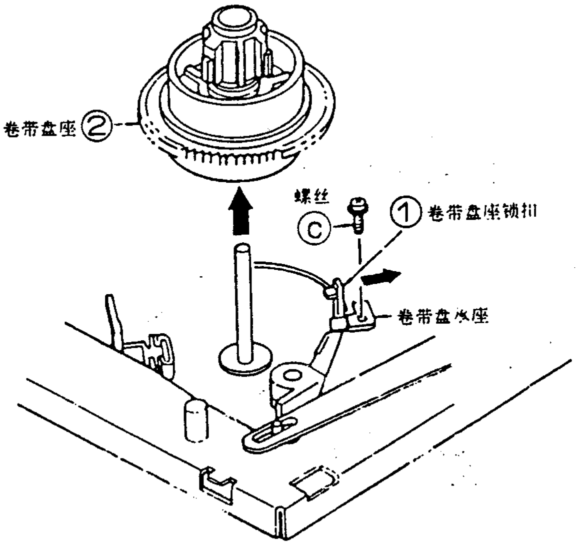

卷带盘座②
螺丝
ⓒ
①卷带盘座锁扣
卷带盘承座

图1—21

● 供带盘座的更换

1. 清擦供带盘座轴①，并注油加以润滑。
2. 松去供带盘座锁扣②以及反向张力杆③。
3. 将准备好的新供带盘座④插套入其轴。
4. 环张力带⑤于供带盘座装置安置就位，并将其端插入张力臂之插孔。
5. 安置供带盘承座组件ⓑ就位，旋紧其紧固螺丝ⓐ。

注意：

1. 安置供带盘座时，务请格外小心，切勿弯折扭曲张力带。
2. 使用工具时，切勿磕碰损伤供带盘齿轮，反向张力杆，供带盘座锁扣以及其它部件。

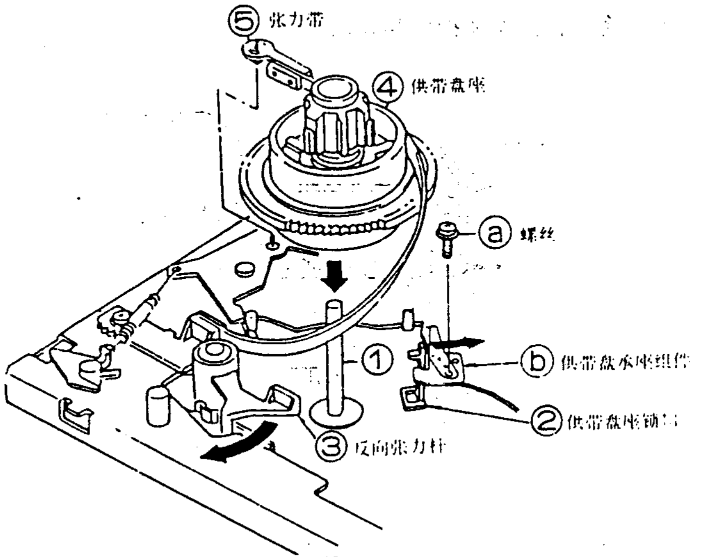

⑤张力带
④供带盘座
ⓐ螺丝
①
ⓑ供带盘承座组件
②供带盘座锁扣
③反向张力杆

图1—22

●卷带盘座的更换

1.清擦卷带盘座轴①，并注油加以润滑。

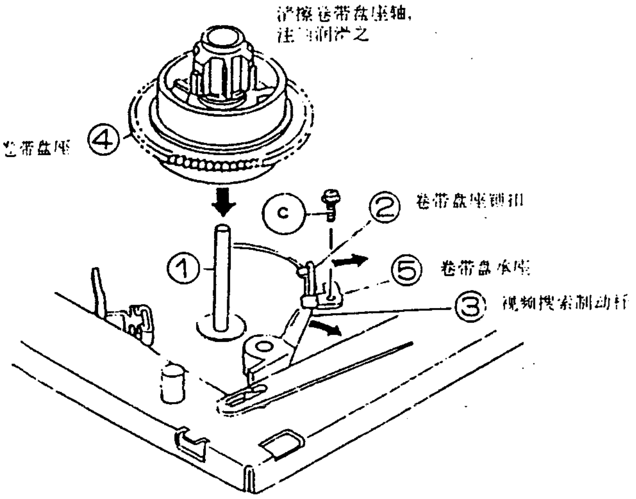
2.松去卷带盘座锁扣②以及视频搜索制动杆③。

3.将准备好的新卷带盘座④插套入其轴。

4.安置卷带盘承座⑤就位，旋紧其紧固螺丝ⓒ。

注意：

务请小心谨慎，切勿碰伤视频搜索制动杆。


清擦卷带盘座轴，
注油润滑之
卷带盘座
④
ⓒ
②
卷带盘座锁扣
①
⑤
卷带盘承座
③
视频搜索制动杆

用一尖头螺丝刀按图中所示箭头方向松开卷带盘座锁扣及视频搜索制动杆，使卷带盘座更容易安置。

图1－23

＊带盘座更换之后，须检查调试视频搜索倒带时的反向张力（见第96页），以及其制动力矩（见第98页）。

●带盘高度的检测和调整

注意：

将主平面板设置于主机芯，注意切勿磕碰磁鼓（见图1－24所示）。

1.用手指压住带盘座，同时用一螺丝刀左右转动其带盘（见图1－26(a)所示），以对其高度进行调整。

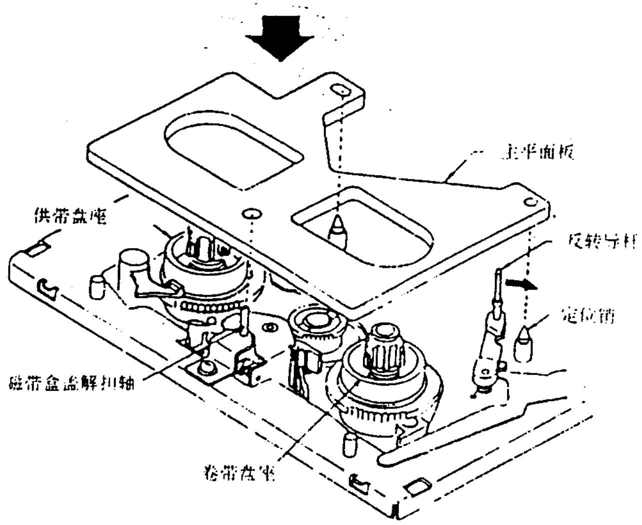
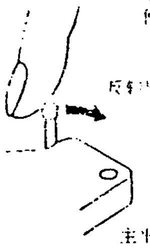

设置主平面板
主平面板
供带盘座
反转导杆
定位销
磁带盒盖解扣轴
卷带盘座

图1－24



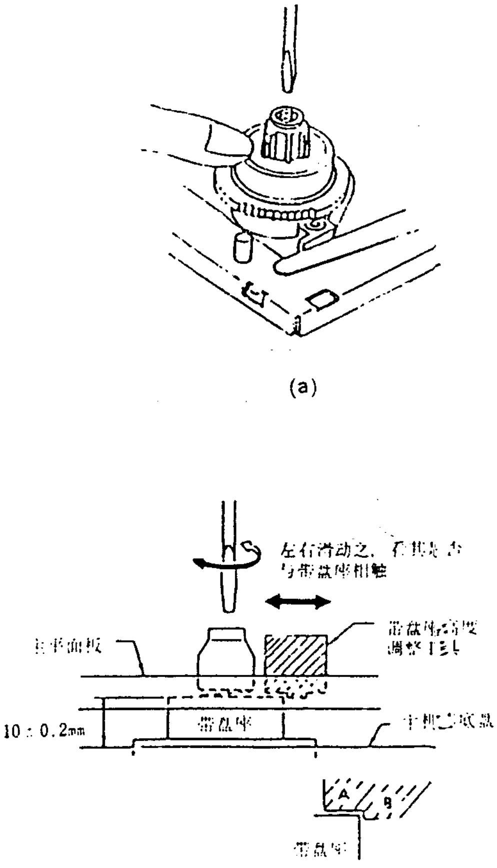
用手指松开反转导杆，使主平面板设置。

图1－25

2.检查带盘座是否低于图示A所示位置而高于B所示位置。如果所测高度不在A B两位置间的要求范围内，则须通过旋转高度调整螺丝对其高度进行调整。（见图1－26(b)所示）。

注意：

带盘座只要一经更换，就必须对其进行高度的检测和调整。


左右滑动之，看其是否
与带盘座相触
主平面板
带盘座高度
调整工具
10±0.2mm
带盘座
主机芯底盘
A
B
带盘座

(a)

(b)

图1－26

快进状态时卷带转矩的检测和调整

- 拆去磁带盒室控制机构
- 转矩测量计的设置

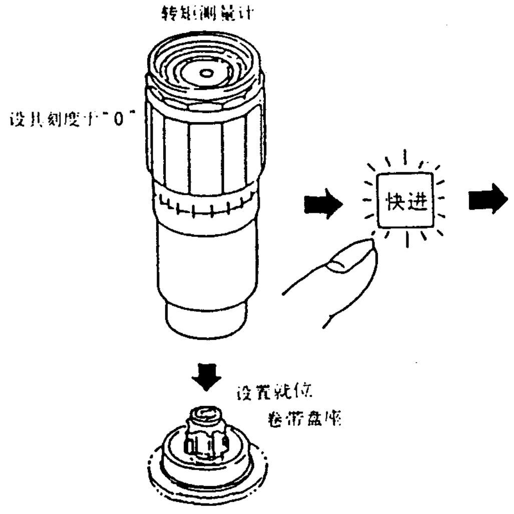

转矩测量计
设其刻度于"0"
快进
设置就位
卷带盘座

图1－27

- 快进转矩的检测

用手缓慢地沿卷带方向旋转转矩测量计(2～3秒/转)。

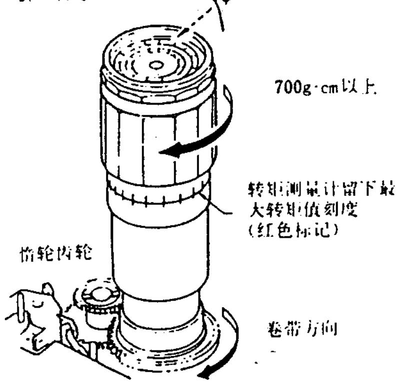

700g·cm以上
转矩测量计留下最大转矩值刻度(红色标记)
惰轮齿轮
卷带方向

图1－28

- 快进转矩的调整

1. 如果所测快进卷带转矩超出或不及规定值范围，则需用清洗液清擦主导轴直接驱动马达皮带轮，带盘皮带及其皮带轮。然后，再测量之。
2. 如果清擦后所测快进卷带转矩仍不符规格要求，则需更换带盘皮带。

注意：

1. 设置及计测时，须用手向下按住转矩测量计，以免卷带盘的旋转甩飞安置于其上的转矩测量计。
2. 作卷带转矩检测时，不宜让带盘座锁扣时间过长。

倒带状态时卷带转矩的检测和调整

- 拆去磁带盒室控制机构
- 转矩测量计的设置

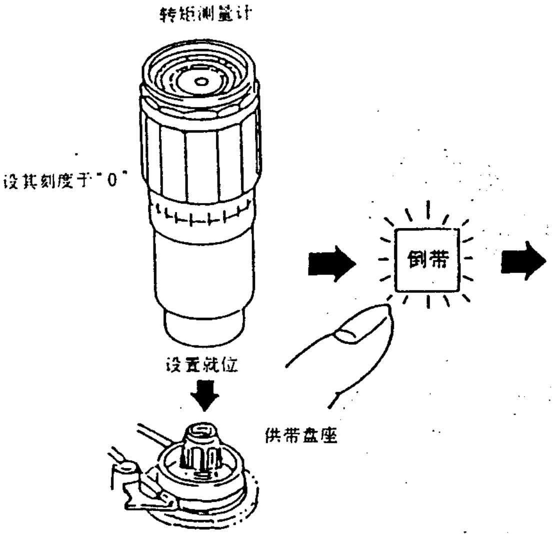

转矩测量计
设其刻度于"0"
倒带
设置就位
供带盘座

图1－29

- 倒带转矩的检测

用手缓慢地沿供带方向旋转转矩测量计（2～3秒/转）

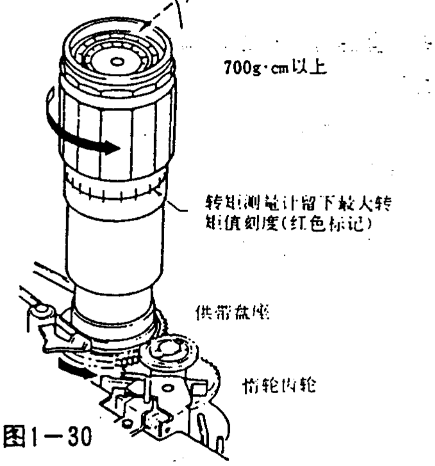

700g·cm以上
转矩测量计留下最大转矩值刻度(红色标记)
供带盘座
惰轮齿轮

图1－30

- 倒带转矩的调整

1. 如果所测倒带转矩超出或不及其规定值范围，则需用清洗液清擦主导轴直接驱动马达皮带轮，带盘皮带及其皮带轮。然后，再测量之。
2. 如果清擦后所测倒带转矩仍不符合规格要求，则需更换带盘皮带。

注意：

1. 设置及计测时，须用手向下按住转矩测量计，以免卷带盘的旋转甩飞安置于其上的转矩测量计。
2. 作卷带转矩检测时，不宜让带盘座锁扣时间过长。

再现状态时卷带转矩的检测和调整

1. 拆去磁带盒室控制机构。
2. 用手揭开盒匣磁带式转矩测量计端口盒盖，用胶带张贴之以保持其开盖状态。

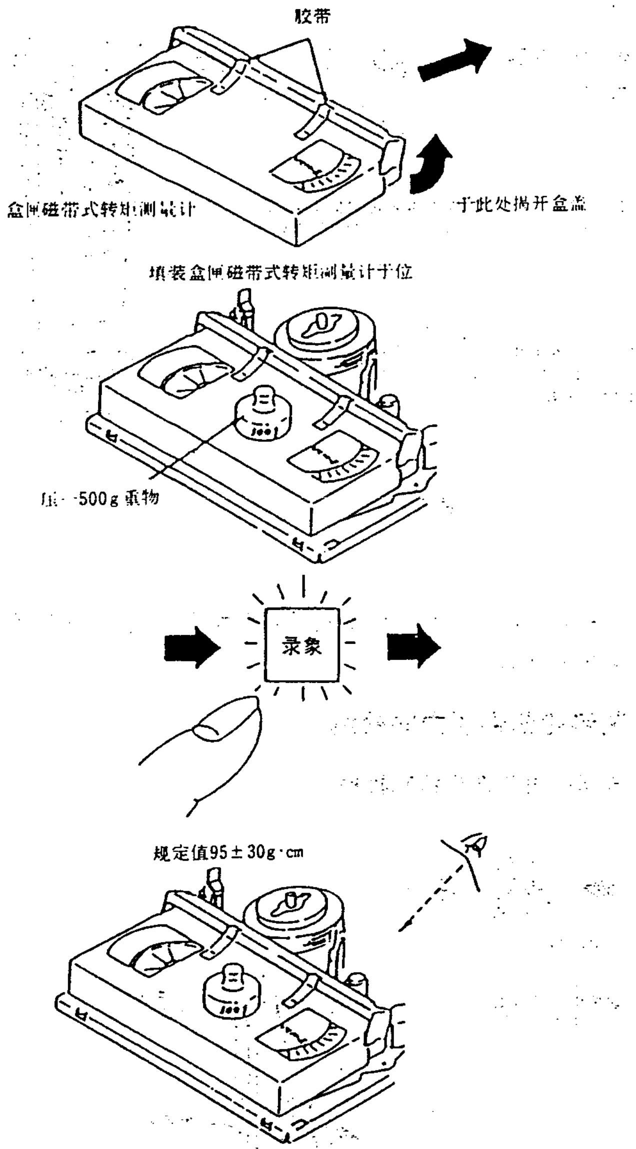

胶带
盒匣磁带式转矩测量计
于此处揭开盒盖
填装盒匣磁带式转矩测量计于位
压一500g重物
录象
规定值95±30g·cm

图1－31

● **再现卷带转矩的检测**

1. 检查所测值是否于95±30g·cm的规定范围内。
2. 由于带盘旋转的不均匀性，所测转矩值有可能产生波动现象。这时应取波动值的中心值为其测定值。
3. 触按录象键(REC)，置录象机为录象状态，检查这时的卷带转矩是否也满足上述要求。

● **再现卷带转矩的调整**

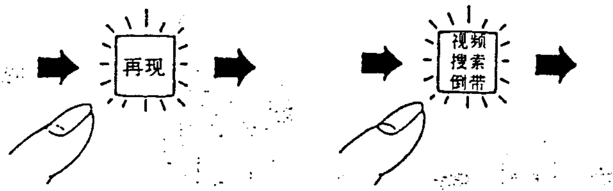
如果所测再现卷带转矩超出或不及其规定值范围，则需更换卷带盘座。

注：压一重物于测量计之上，以防其翘起。

视频搜索倒带状态时卷带转矩的检测和调整

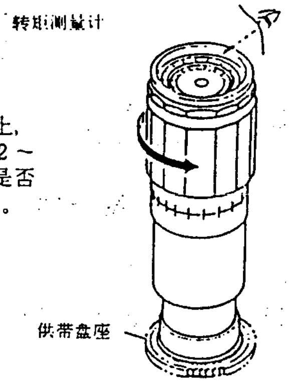
● **拆去磁带盒室控制机构**

● **视频搜索倒带转矩的检测**



触按再现键(PLAY)，置录象机于再现状态，

触按视频搜索倒带键(VSR)，置录象机于视频搜索倒带状态。



置转矩测量计于供带盘座之上，逆时针方向缓慢地旋转之（2～3秒/转），检查所测转矩值是否于170±40g·cm的规定范围内。

图1－32

注意：

应将转矩测量计牢固地安置于供带盘座之上，否则，所测值并非真实。

● **视频搜索倒带转矩的调整**

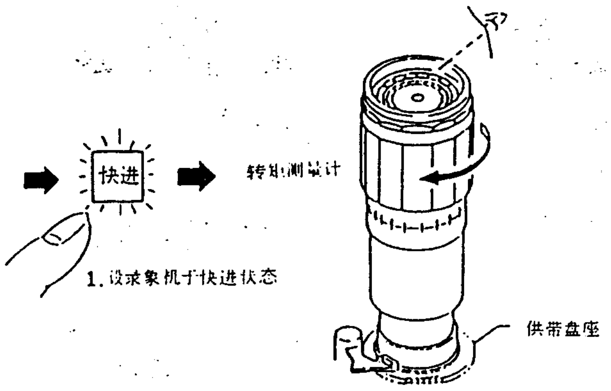
如果所测视频搜索倒带状态时的卷带转矩超出或不及其规定值范围，则需更换卷带盘座。

注意：

由于供带盘旋转的不均匀性，所测转矩值有可能产生波动现象。这时应取波动值的中心值为其测定值。

快进状态时的反向张力的检测

- 拆去磁带盒室控制机构
- 检测反向张力


快进
转矩测量计
供带盘座

1. 设录象机于快进状态

2. 置转矩测量计于供带盘座之上，顺时针方向缓慢地旋转之(2～3秒/转)，检查所测转矩值是否于15±5g·cm的规定范围内。

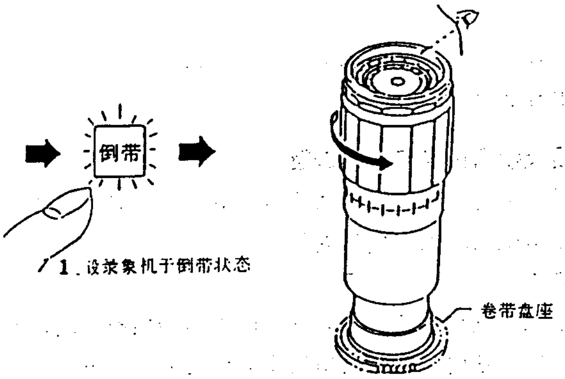
图1－33

注意：

应将转矩测量计牢固地安置于供带盘座之上，否则，所测值并非真实。

倒带状态时反向张力的检测

- 拆去磁带盒室控制机构
- 检测反向张力



1. 设录象机于倒带状态

2. 置转矩测量计于卷带盘座之上，逆时针方向缓慢地旋转之(2～3秒/转)，检查所测转矩值是否于15±5g·cm的规定范围内。

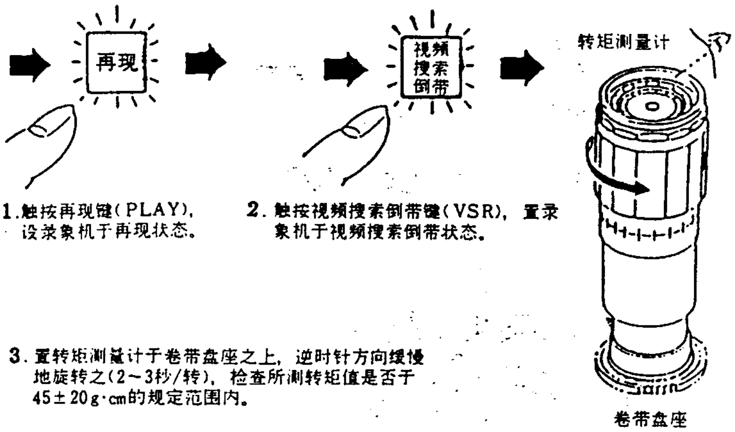
图1－34

注意：

应将转矩测量计牢固地安置于卷带盘座之上，否则，所测值并非真实。

视频搜索倒带状态时反向张力的检测

- 拆去磁带盒室控制机构
- 检测反向张力


再现
视频
搜索
倒带
转矩测量计
卷带盘座

1. 触按再现键(PLAY)，设录象机于再现状态。

2. 触按视频搜索倒带键(VSR)，置录象机于视频搜索倒带状态。

3. 置转矩测量计于卷带盘座之上，逆时针方向缓慢地旋转之(2～3秒/转)，检查所测转矩值是否于45±20g·cm的规定范围内。

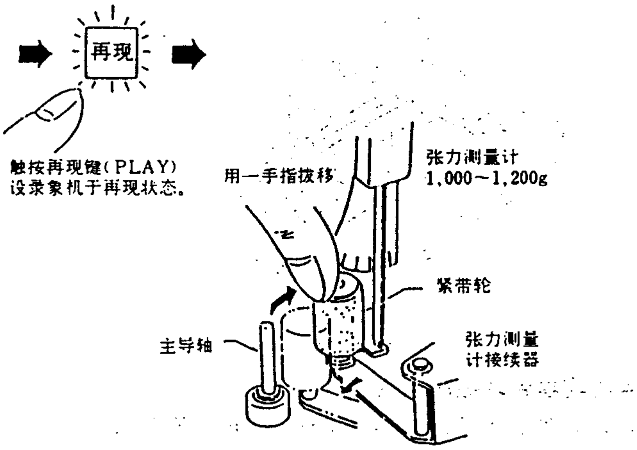
图1－35

注意：

应将转矩测量计牢固地安置于卷带盘座之上，否则，所测值并非真实。

紧带轮紧带压力的检测

- 拆去磁带盒室控制机构


再现
用一手指拔移
张力测量计
1,000～1,200g
紧带轮
主导轴
张力测量
计接续器

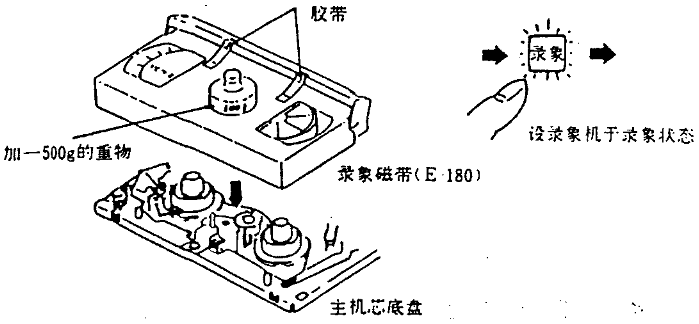
触按再现键(PLAY)设录象机于再现状态。

图1－36

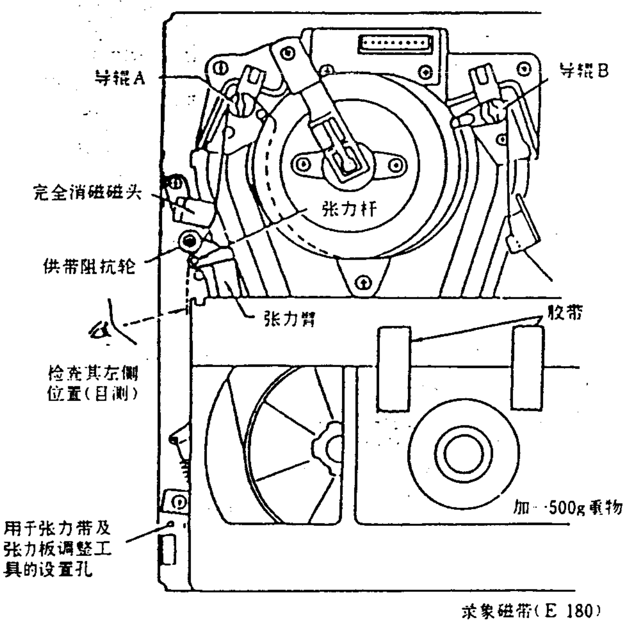
1. 用一手指拔移紧带轮，使之与主导轴分离。
2. 通过套挂张力测量计接续器将张力测量计设置于紧带轮轴之上。
3. 慢慢放松施于手指的压力，让紧带轮渐渐靠拢主导轴。在紧带轮与主导轴相触的瞬间，测量计上的读数就是所要计测的压力值。
4. 检查所测压力值是否在1,000～1,200 g 的规定范围内。

张力杆位置的检测和调整

- 拆去磁带盒室控制机构
- 测量计的设置


胶带
加一500g的重物
录象磁带(E 180)
主机芯底盘
录象
设录象机于录象状态

(a)


导辊A
导辊B
完全消磁磁头
张力杆
供带阻抗轮
张力臂
胶带
检查其左侧位置(目测)
加 500g重物
用于张力带及张力板调整工具的设置孔
录象磁带(E 180)

(b)

图1—37

- 张力杆位置的检测

1. 导辊(A和B)的作用在于从磁带盒匣中拉出磁带，与此同时，张力杆向左移动，将由导辊拉出的磁带装挂于磁头等工作位置。因此，应于其动作时(拉磁带完全装挂就位时)，检查张力杆的位置是否正确。
2. 于录象磁带(E－180)始端时，通过目测检查张力杆中心位置是否与供带阻抗轮中心对齐。
3. 检查录象磁带终端是否绞带于供带阻抗轮法兰或绕过其之上。
4. 设录象机于无带盒装填的视频搜索倒带状态，检查供带盘座是否与张力带分离。

- 张力杆位置的调整(录象状态)

张力杆位于供带阻抗轮中心的右侧之场合：

松放紧固螺丝，用张力带及张力板调整工具沿下图箭头所指方向移动张力带调节座，以使张力杆位置移至其规定位置(左侧位置)，然后，旋紧紧固螺丝即可。

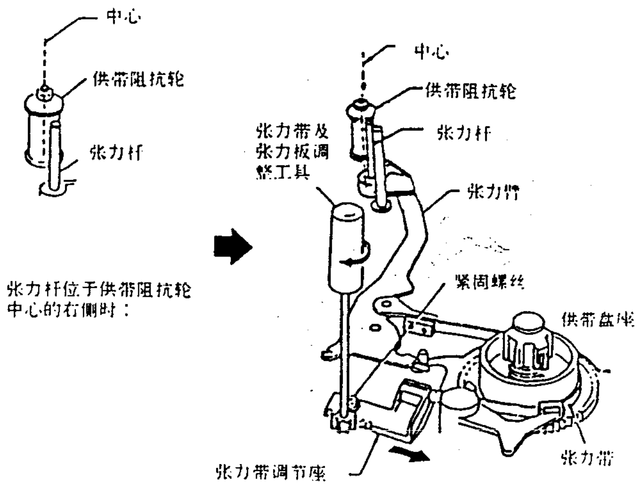

中心
供带阻抗轮
张力杆
张力杆位于供带阻抗轮中心的右侧时：
中心
供带阻抗轮
张力杆
张力带及张力板调整工具
张力臂
紧固螺丝
供带盘座
张力带
张力带调节座

图1—38

- 张力杆位置的调整(录象状态)

张力杆位于供带阻抗轮中心的左侧之场合：

松放紧固螺丝，用张力带及张力板调整工具沿下图箭头所指方向移动张力带调节座，以使张力杆位置移至其规定位置(中心对齐)，然后，旋紧紧固螺丝即可。

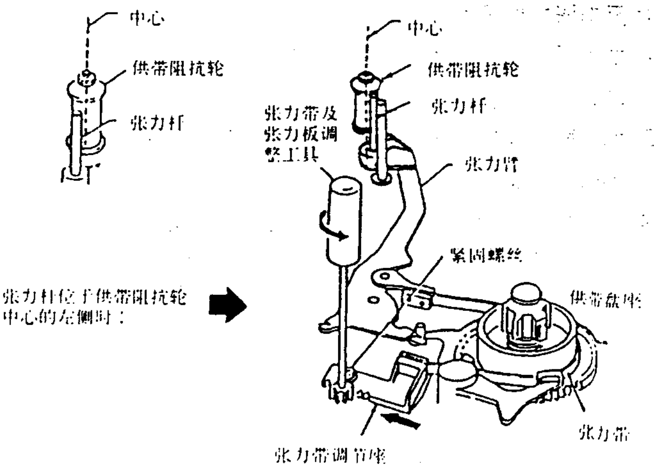

中心
供带阻抗轮
张力杆
张力杆位于供带阻抗轮中心的左侧时：
中心
供带阻抗轮
张力杆
张力带及张力板调整工具
张力臂
紧固螺丝
供带盘座
张力带
张力带调节座

图1—39

录象/再现状态时反向张力的检测和调整

A．用盒匣磁带式转矩测量计时：

- **拆去磁带盒室控制机构**

- **反向张力的检测**

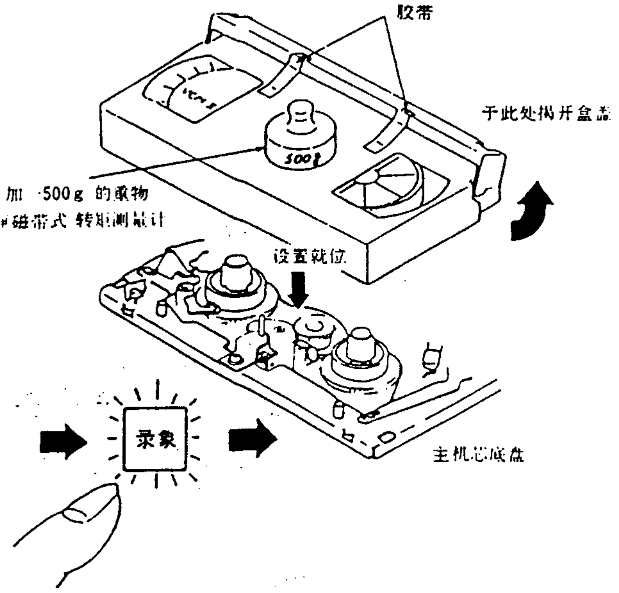

胶带
于此处揭开盒盖
500g
加 500g 的重物
盒匣磁带式 转矩测量计
设置就位
录象
主机芯底盘

图1－40

1．将盒匣磁带式转矩测量计设置就位。
2．触按录象键(REC)，设录象机于录象状态。
3．检查所测反向张力值是否在31～36g·cm的规定范围内。

注意：

1．确认走带时，不发生磁带高出定位导杆的现象。
2．确认磁带自始至终不发生松弛或损伤现象。

- **反向张力的调整**

1．如果所测反向张力值小于规定值，朝下图孔A方向拨动张力弹簧扣片。
2．如果所测反向张力值大于规定值，朝下图孔B方向拨动张力弹簧扣片。
＊用一小螺丝刀(一字口)，倾斜地插人其轴孔，旋转之以更简单地朝孔A或孔B方向拨动张力弹簧扣片。

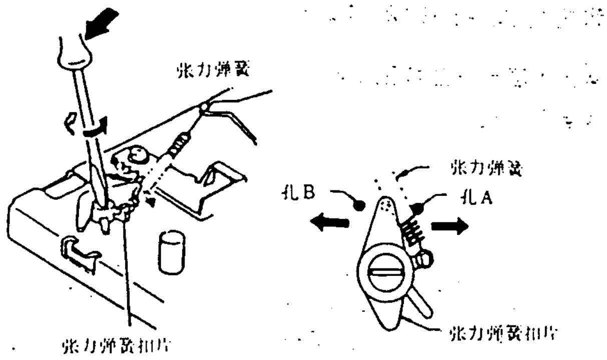

张力弹簧
张力弹簧
孔B
孔A
张力弹簧扣片
张力弹簧扣片

图1－41

制动力矩的检测

- **供带侧制动力矩的检测**

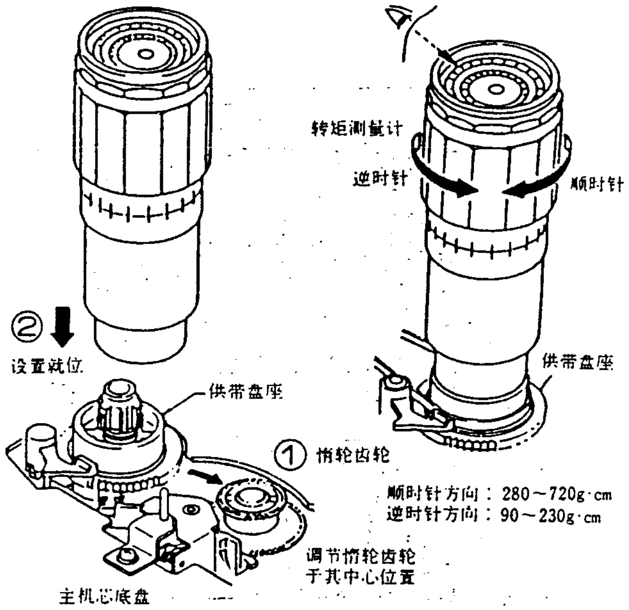

②
设置就位
供带盘座
① 惰轮齿轮
主机芯底盘
调节惰轮齿轮于其中心位置
转矩测量计
逆时针
顺时针
供带盘座
顺时针方向：280～720g·cm
逆时针方向：90～230g·cm

图1－42

1．拆去磁带盒室控制机构。
2．录象机处于快进或倒带状态时，拔去电源引线插头，使之处于全停状态。
3．用手缓慢地沿供带制动的顺时针方向和逆时针方向旋转转矩测量计，使转矩测量计的刻度盘与供带盘以同样的转速旋转。然后，检查所测值是否满足其规定要求：顺时针方向制动力矩＝280～720g·cm；逆时针方向制动力矩＝90～230g·cm。另外，两者所测值还得满足顺时针方向制动力矩至少等于逆时针方向制动力矩的两倍之规定要求。

- **卷带侧制动力矩的检测**

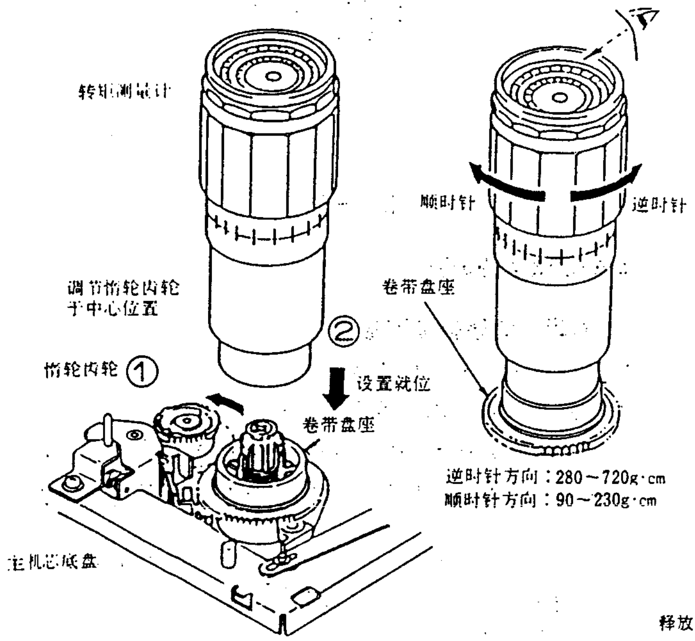

转矩测量计
调节惰轮内轮于中心位置
②
惰轮内轮 ①
设置就位
卷带盘座
主机芯底盘
顺时针
逆时针
卷带盘座
逆时针方向：280～720g·cm
顺时针方向：90～230g·cm

图1—43

1. 拆去磁带盒室控制机构。
2. 用手缓慢地沿卷带制动的顺时针方向和逆时针方向旋转转矩测量计，使转矩测量计的刻度盘与卷带盘以同样的转速旋转。然后，检查所测值是否满足其规定要求：逆时针方向制动力矩＝280～720g·cm；顺时针方向制动力矩＝90～230g·cm。另外，两者所测值还得满足逆时针方向制动力矩至少等于顺时针方向制动力矩的两倍之规定要求。

- **供带侧以及卷带侧制动力矩的调整**

1. 如果供带侧或卷带侧制动力矩所测值不满足其规定要求，则应清擦供带盘座或卷带盘座制动杆及其垫圈，然后重新检测之。
2. 如果清擦后重测制动力矩仍不符规定要求，则需更换主制动器或主制动弹簧。

主制动器的更换

1. 拆下带盘皮带以及带盘装置全平电缆（FFC）。
2. 松去开口垫圈①，分离制动器拔叉。
3. 松去四支螺丝②，拆去卷带盘锁扣架。
4. 向下抽拉拆去带盘组装单元Ⓐ。
5. 先松去开口垫圈③，然后拆去带盘皮带轮。
6. 松去两支螺丝④，取去惰轮组件。
7. 松开反向张力杆弹簧⑤，拆去反向张力杆⑥。（松开带盘底盘的钩扣）。
8. 松开拔叉锁闩⑦，拆去制动器拔叉组件⑧。
9. 松解带盘座锁扣⑬，拆去左右带盘座组件⑨和⑩。
10. 松去主制动臂⑪以及主制动弹簧⑫。

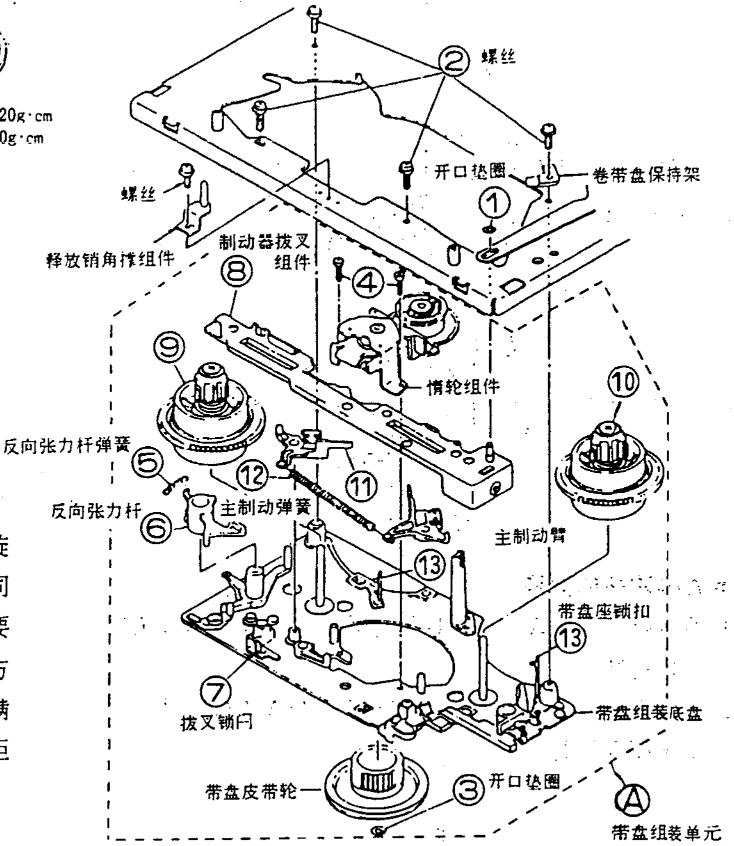

② 螺丝
螺丝
开口垫圈
卷带盘保持架
①
释放销角撑组件
制动器拔叉组件
⑧
④
⑨
惰轮组件
⑩
反向张力杆弹簧
⑤
⑫
⑪
反向张力杆
⑥
主制动弹簧
主制动臂
⑬
带盘座锁扣
⑬
⑦
拔叉锁闩
带盘组装底盘
带盘皮带轮
③ 开口垫圈
Ⓐ
带盘组装单元

图1—44

注意：

主制动器一经更换，则需进行高度的检测与调整（见第93页所述），以及制动力矩的检测（见第98页所述）。

音频/控制(A/C)磁头的更换

1.拆去磁带盒室控制机构。
2.设录象机于出盒状态后，拔去其电源引线插头。

● A/C磁头的拆卸

1.松旋倾斜度调整螺丝①。
2.松去方位角调整螺丝②。
3.松去A/C磁头螺丝③。
4.松焊A/C磁头印刷电路板与A/C磁头的连线。

注意：

1.拆装更换后，必须进行磁带走行检查调整（见第102页所述）。拆装过程中，无论是什么情况，都不得用手或他物触碰A/C磁头。
2.松去A/C磁头螺丝时，注意防止其方位弹簧弹出遗失。

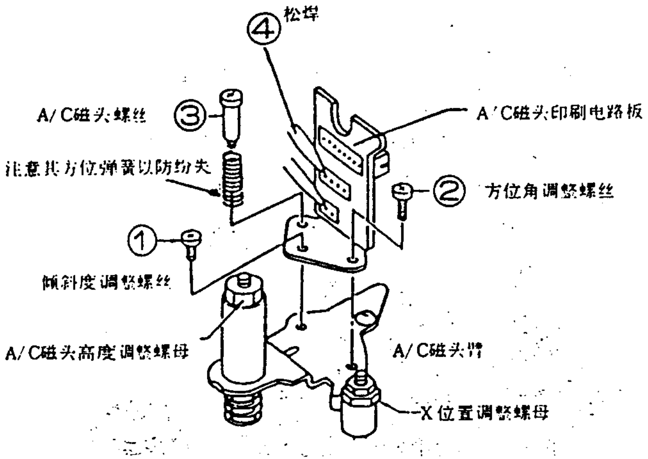

④ 松焊
A/C磁头螺丝 ③
注意其方位弹簧以防纷失
A/C磁头印刷电路板
② 方位角调整螺丝
①
倾斜度调整螺丝
A/C磁头高度调整螺母
A/C磁头臂
X位置调整螺母

图1—45

● A/C磁头的更换

1.焊接拆卸下的A/C磁头印刷电路板与更换用新A/C磁头的连线。
2.安置A/C磁头组件，使A/C磁头臂与A/C磁头基板大致上相互平行。

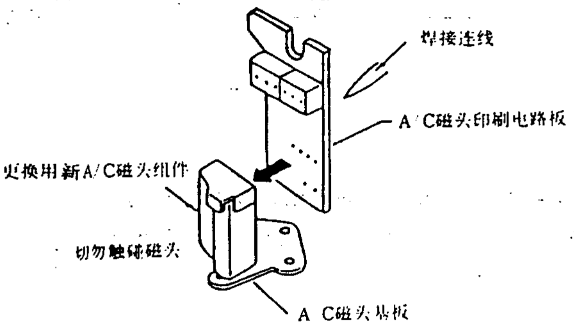

焊接连线
A/C磁头印刷电路板
更换用新A/C磁头组件
切勿触碰磁头
A/C磁头基板

图1—46

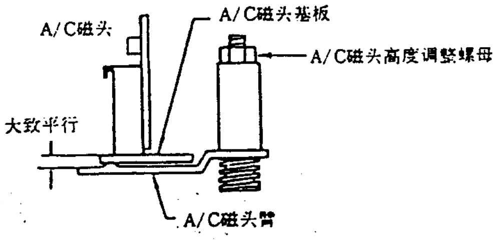
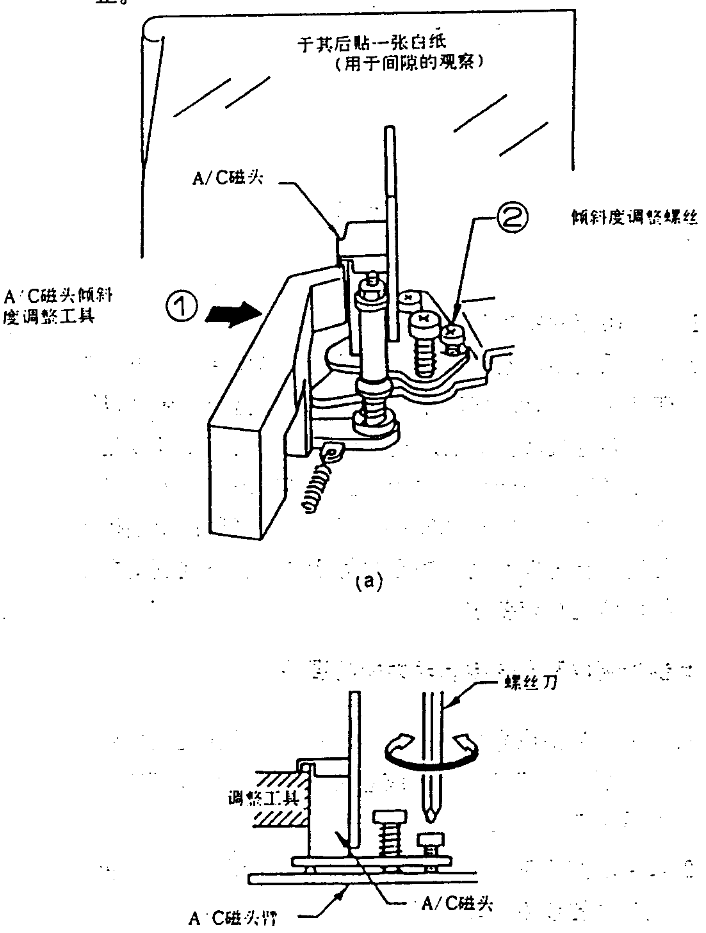

A/C磁头
A/C磁头基板
A/C磁头高度调整螺母
大致平行
A/C磁头臂

图1—47

● A/C磁头的调整

〔A/C磁头的倾斜度调整〕

1.设录象机于带盒装填状态。
2.设置A/C磁头倾斜度调整工具①就位。
3.用一螺丝刀缓慢地转动倾斜度调整螺丝②，直至A/C磁头与A/C磁头倾斜度调整工具间的间隙完全消去为止。


于其后贴一张白纸
（用于间隙的观察）
A/C磁头
②
倾斜度调整螺丝
A/C磁头倾斜度调整工具
①
螺丝刀
调整工具
A/C磁头臂
A/C磁头

(a)

(b)

图1—48

〔A/C磁头的高度粗调〕

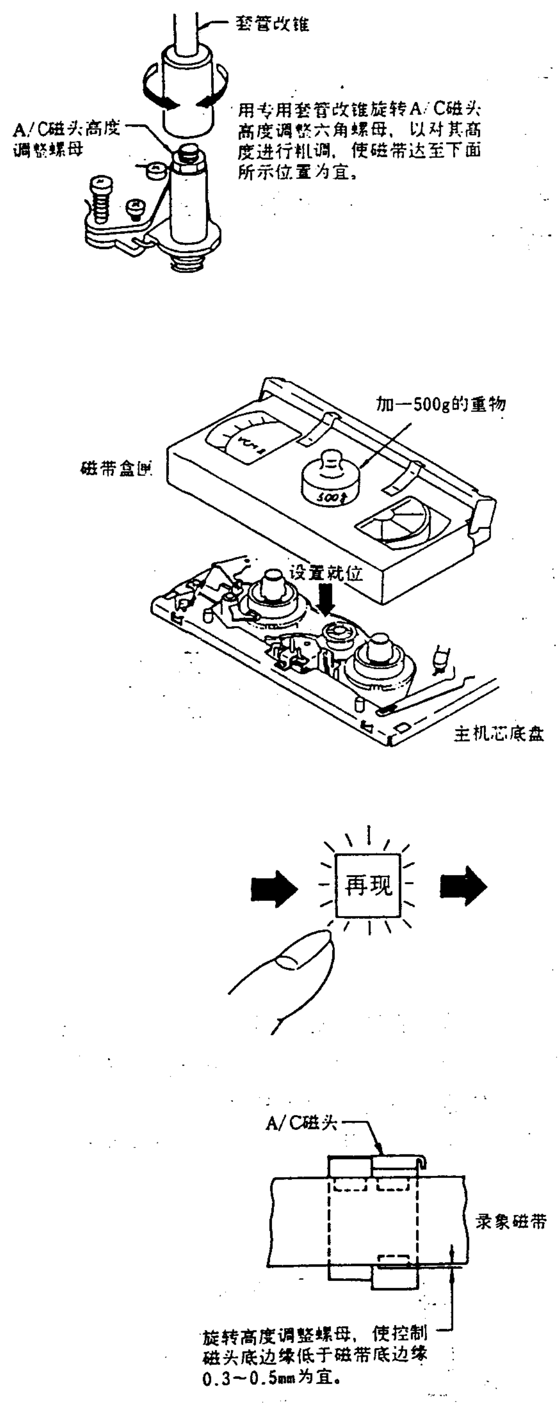

套管改锥
A/C磁头高度调整螺母
用专用套管改锥旋转A/C磁头高度调整六角螺母，以对其高度进行粗调，使磁带达至下面所示位置为宜。
加一500g的重物
500g
磁带盒匣
设置就位
主机芯底盘
再现
A/C磁头
录象磁带
旋转高度调整螺母，使控制磁头底边缘低于磁带底边缘0.3～0.5mm为宜。

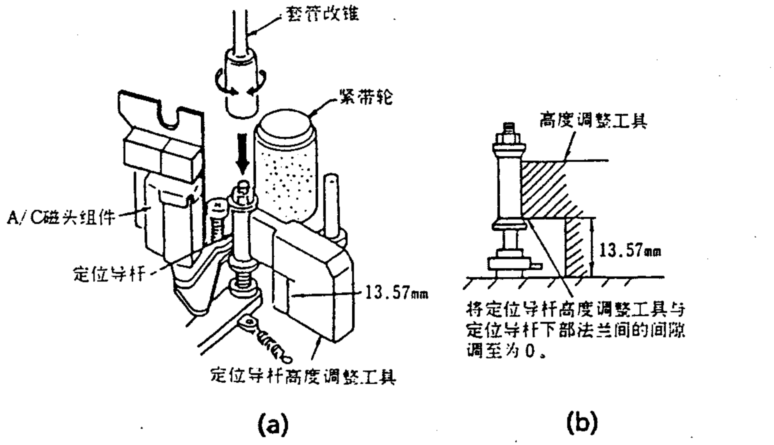
图1－49

定位导杆以及反转导杆的高度调整

注意：

在进行磁带走行情况的粗调之前，应先用专用工具检查定位导杆的高度是否满足图1-50所示要求。

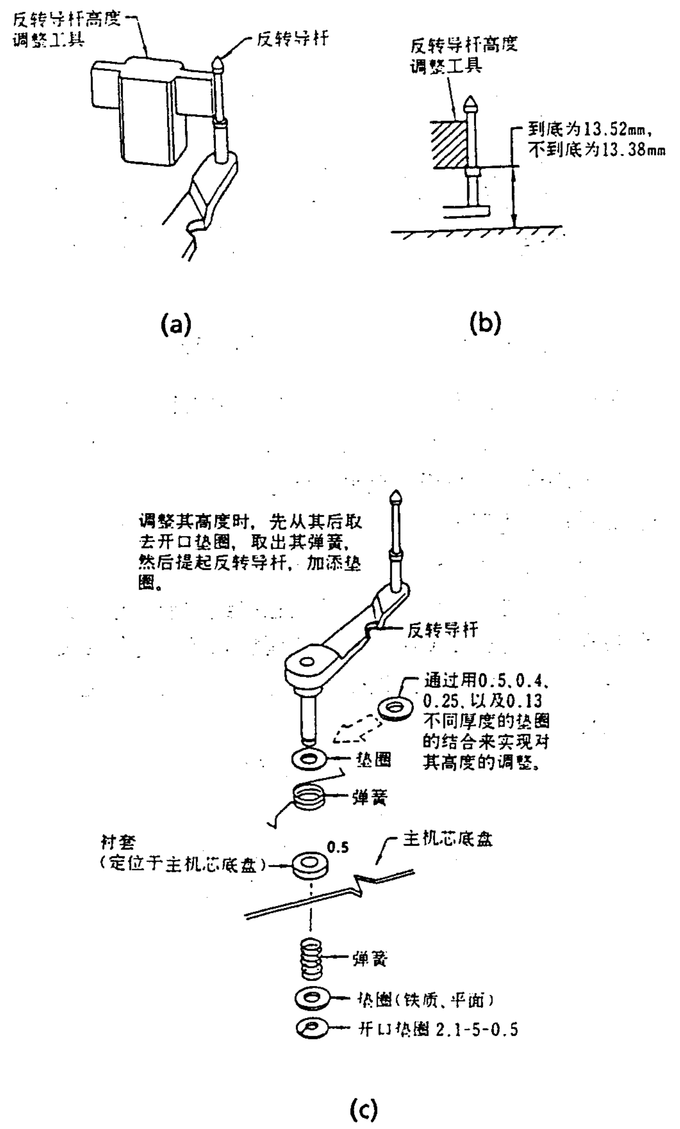
〔定位导杆的高度调整〕


套管改锥
紧带轮
A/C磁头组件
定位导杆
13.57mm
定位导杆高度调整工具
高度调整工具
13.57mm
将定位导杆高度调整工具与定位导杆下部法兰间的间隙调至为0。

(a) (b)

图1－50

〔反转导杆的高度调整〕


反转导杆高度调整工具
反转导杆
反转导杆高度调整工具
到底为13.52mm，不到底为13.38mm
调整其高度时，先从其后取去开口垫圈，取出其弹簧，然后提起反转导杆，加添垫圈。
反转导杆
通过用0.5、0.4、0.25、以及0.13不同厚度的垫圈的结合来实现对其高度的调整。
垫圈
弹簧
衬套（定位于主机芯底盘）
0.5
主机芯底盘
弹簧
垫圈（铁质、平面）
开口垫圈 2.1-5-0.5

(a) (b)

(c)

图1－51

磁带走行情况的调整

1. 拆去磁带盒室控制机构。
2. 检测调整张力杆的位置。（见第97页）。
3. 检测调整视频搜索状态时的反向张力。（见第96页）
4. 设定调整A/C磁头倾斜度。（见第100页）
5. 按下述步骤对磁带走行情况进行粗调。
   - a)连接示波器于再现色彩包络线输出（TP2201）试点。设示波器同步性于外接。这样，再现色彩信号便会被磁头转换脉冲（TP2202）所触发。
   - b)先松开导辊底部的设定螺丝，然后再用导辊调整专用螺丝刀（JIGDRIVERH-4）稍微将其旋至能轻松圆滑地旋动它之程度。（见图1-52）
   - c)将校正用磁带（单象管图案）盒匣安置于带盘座上，然后，将录象机设定于再现状态。
     （施加一500g的重物于带盒之上，以防走带时带盒的翘起），

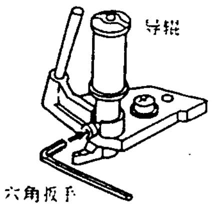


图1－52

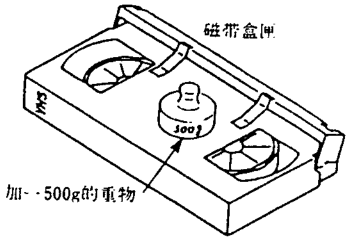


图1－53

   - d)通过触按跟踪键（＋）和（－），使其输出包络线波形从最大调至最小或最小调至最大。这时，观察其输出包络线波形是否达至平坦状态。
   - e)如通过上述调节，其输出包络线波形无法达至平坦状态，则需用导辊调整用螺丝刀，对供带侧和卷带侧的导辊进行粗调，直至输出包络线波形达至平坦。
   - f)用螺丝刀旋转A/C磁头倾斜度调整螺丝而进行A/C磁头倾斜度的调整，以防由上部与下部法兰在磁带上起皱。
     1)由上部法兰起皱时：如下图1-54(a)所示那样顺时针方向旋转倾斜度调整螺丝而进行调整。
     2)由下部法兰起皱时：如下图1-54(b)所示那样逆时针方向旋转倾斜度调整螺丝而进行调整。

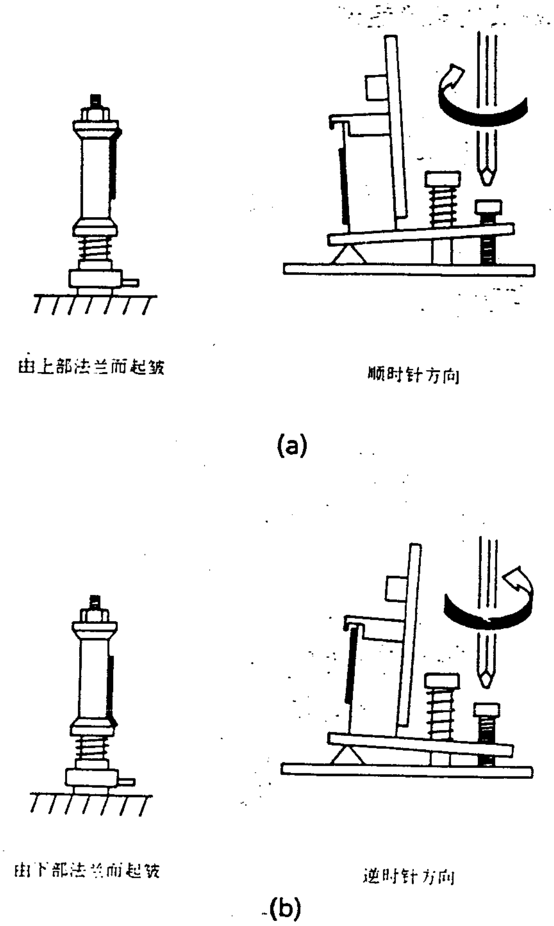


图1－54

注意：

1. 将跟踪调节控制钮设定于其中间位置，然后调整X位置调整螺母，使再现色彩包络线波形达其最大，以便进行磁带走行情况的粗调。
2. 粗调过程中，应特别注意对其输出波形等的观察。

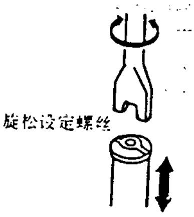


图1－55

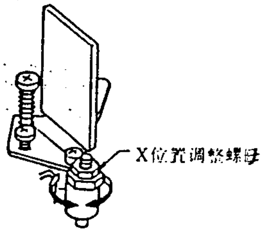


图1－56

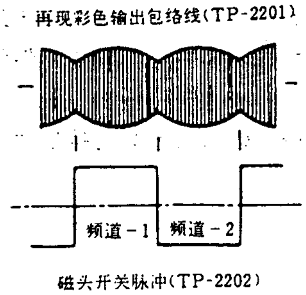


图1－57

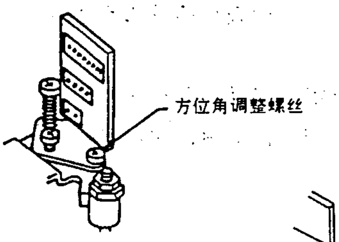


图1－58

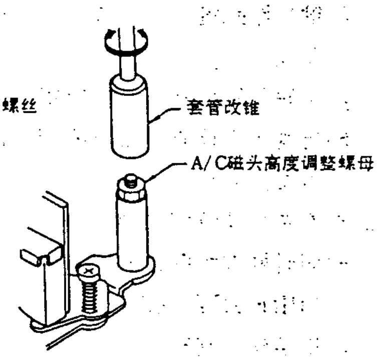


图1－59

6. A/C磁头高度和方位角的调整

a)连接示波器于音频输出端。

b)装入校正用磁带、再现之，让其输出 6 kHz 的音频信号（其视频信号为单象管图形）。用十字口螺丝刀旋转A/C磁头方位角调整螺丝，使示波器上音频输出达其最大。（见图1-58）。

c)再现校正用磁带，让其输出1kHz的音频信号（其视频信号为彩条图形）。用专用套管改锥缓慢地旋转A/C磁头高度调整螺母，使示波器上音频输出达其最大。

d)重复步骤b)的调整。

e)完成上述步骤后，浇粘合剂（LOCTITE）于方位角调整螺丝和高度调整螺母之上，封固之。

7. 走带系统以及X位置的调整。

a)连接示波器于试点TP2201，作再现彩色包络线输出。设示波器同步于外接。这样，再现彩色信号将被磁头开关脉冲（TP2202）所触发。

b)再现走带检查用校正磁带。

c)触按跟踪键的（＋）或（－），使输出包络线波形从最大转至最小，然后又从最小转为最大。用高度调整用螺丝刀调整供带盘侧和卷带盘侧导辊的高度，使输出包络线尽可能达至平坦。

d)如果走行中的磁带低于或高于螺旋扫描导前，再现彩色输出便会呈现图1-60所示波形。

e)按第102页步骤 5 的项目e)要求，调节输出包络线的最大平坦度。

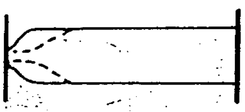
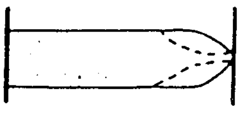
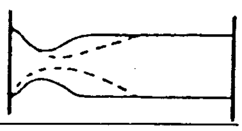
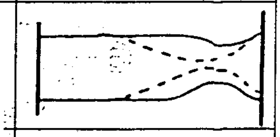
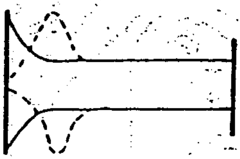
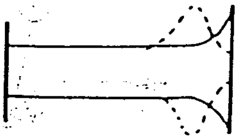
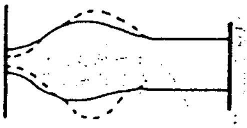
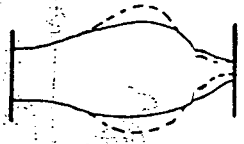
	磁带高于螺旋扫描导前		磁带低于螺旋扫描导前	
	供带侧	卷带侧	供带侧	卷带侧
				
				
调整	顺时针方向旋转供带盘侧导辊（导辊降低），使其输出波形包络线达至平坦。	顺时针方向旋转卷带盘侧导辊（导辊降低），使其输出波形包络线达至平坦。	逆时针方向旋转供带盘侧导辊（导辊升高），让磁带高过螺旋扫描导前。然后，顺时针方向旋转供带盘侧导辊，使其输出波形包络线达至平坦。	逆时针方向旋转卷带盘侧导辊（导辊升高），让磁带高过螺旋扫描导前。然后，顺时针方向旋转卷带盘侧导辊，使其输出波形包络线达至平坦。

图1－60

f)触按跟踪键的(＋)或(－)，检查包络线波形的平坦度反应。

g)于磁带卸挂状态，用导辊设定螺丝紧固导辊。

h)再现走带检查用校正磁带，检查输出包络线波形是否发生变化。

8.A/C磁头X位置的调整

a)同时触按跟踪键的(＋)和(－)，其意为设其于预设(PRESET)状态。

b)用螺丝刀旋转A/C磁头X位置调整螺母，以调整A/C磁头X位置，以得磁头开关脉冲下侧的最大包络线。

c)调整再现转换点。

d)再现一录象磁带，检查输出包络线波形以及声音的平坦度是否满足要求。

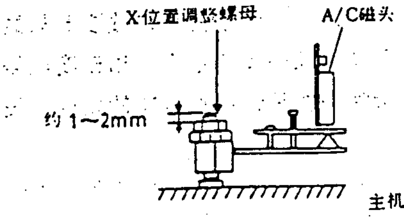

X位置调整螺母
A/C磁头
约1~2mm
主机芯底盘

图1－61

主导轴直接驱动马达的拆卸和组装

1.拆去磁带盒室控制机构。

●直接驱动马达的拆卸(按图中所示顺号进行)

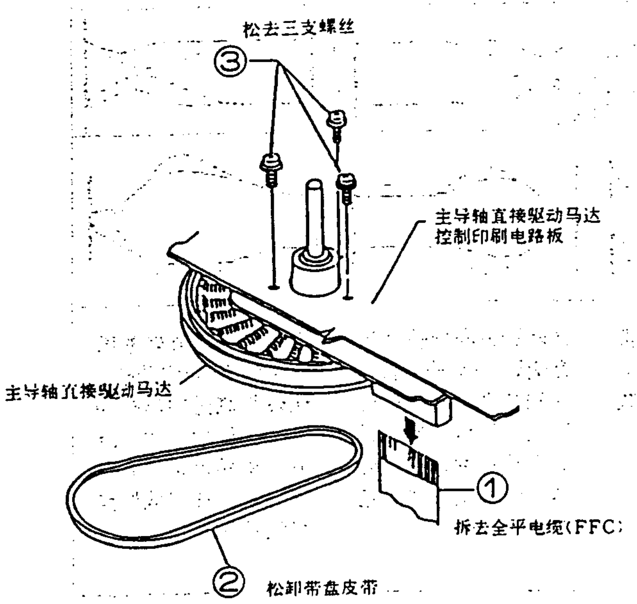

松去三支螺丝
③
主导轴直接驱动马达控制印刷电路板
主导轴直接驱动马达
①
拆去全平电缆(FFC)
②
松卸带盘皮带

图1－62

●直接驱动马达的组装

1.将主导轴直接驱动马达就位于主机芯底盘。这时，应注意不要让主导轴磕碰主机芯底盘。然后，用三支螺丝将其紧固。

2.插接全平电缆(FFC)于主导轴直接驱动马达控制印刷电路板。

3.套上带盘皮带。

注意：

1.组装完毕，转动主导轴直接驱动马达，检查其转动是否圆滑。

2.检测，调整其伺服电路。

磁带装挂齿轮组的拆卸和组装

1.拆去磁带盒室控制机构。

2.松下带盘皮带。

3.拆下带盘装置单元。

●齿轮组的拆卸

注意：

1.拆卸时应小心谨慎，切勿使如图1-63所示卡扣于卷带盘装挂齿轮以及供带盘装挂齿轮上的部件变形损伤。

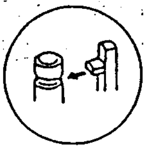


图1－63

2.拆卸磁带装挂齿轮时，请用橡皮带或其它固定导辊，以免再组装时的麻烦。

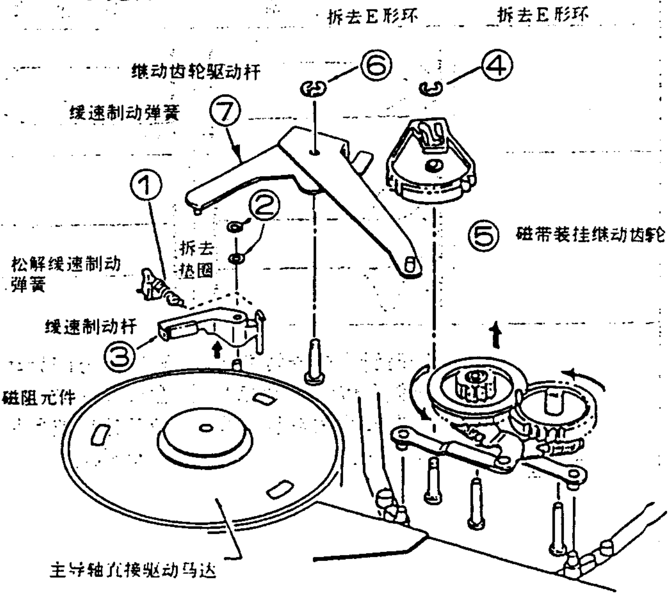

拆去E形环
拆去E形环
继动齿轮驱动杆
⑥
④
缓速制动弹簧
⑦
①
②
拆去垫圈
⑤
磁带装挂继动齿轮
松解缓速制动弹簧
缓速制动杆
③
磁阻元件
主导轴直接驱动马达

图1－64

1. 松解缓速制动弹簧①。
2. 拆去开口垫圈②。
3. 拆去缓速制动杆③。
4. 拆去E形环④。
5. 顺装挂旋转方向转动卷带盘磁带装挂齿轮及其装挂臂组件以及供带盘磁带装挂齿轮及其装挂臂组件，将两者⑤拆卸之。
6. 拆去E形环⑥。
7. 拆去继动齿轮驱动杆⑦。

● **齿轮组的组装**

按拆卸步骤的相反顺序进行组装。组装中，注意对齐下图所示的齿轮啮合记号。

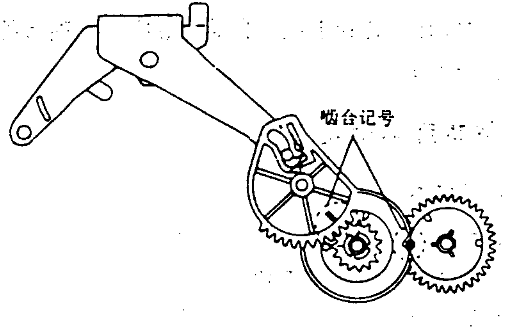


图1－65

注意：

1. 组装后，须向下述部件加注特殊规格的润滑油：各齿轮的全部轮齿，各齿轮轴以及磁带装挂继动齿轮的凸轮槽榫。
2. 切勿造成供带盘及卷带盘的磁带装挂臂的变形和损伤。
3. 切勿弄脏缓速制动杆的毡垫。
4. 切勿让主导轴直接驱动马达的外表面沾染尘埃。(否则，磁阻元件可能会受损害。)
5. 切勿让缓慢制动轴盖以及供带／卷带盘磁带装挂齿轮的防落钩扣的变形超过其规定要求范围。

装带装置的拆卸和组装

● **装带装置的拆卸**

1. 松去连接于装带装置上的引线①。
2. 松下带盒装填皮带②。
3. 松去三支螺丝③。
4. 向上拉出装带装置。

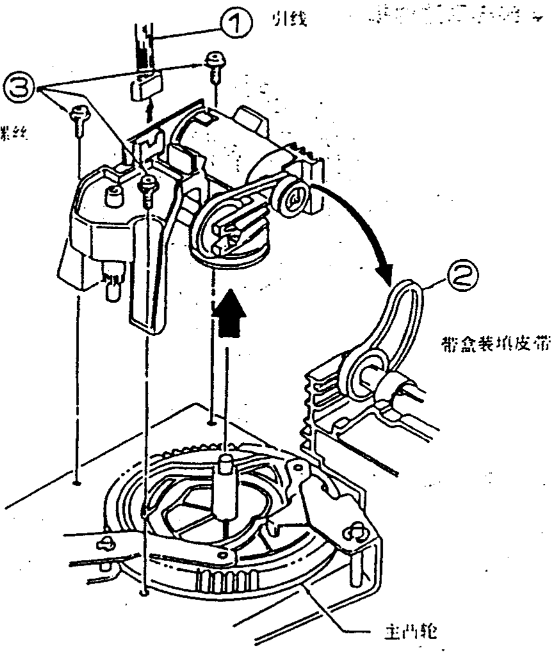


图1－66

注意：

如使用带磁螺丝刀进行拆卸，请注意切勿让带磁螺丝刀触碰A/C磁头。

● **装带装置的组装**

1. 逆时针方向满转主凸轮。
2. 对齐凸轮开关的啮合记号，将装带装置与主凸轮相互就位组合，用三支螺丝固定之。

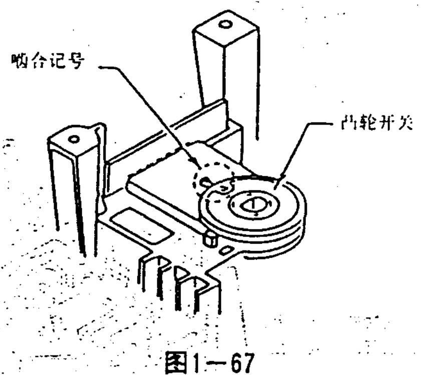


图1－67

3. 最后，连接引线，挂上带盒装填皮带。

注意：

1. 切勿碰伤齿轮。
2. 切勿弄脏皮带。如将皮带弄脏，务必用指定清洁剂清洗之。

装带马达的拆卸和组装

1. 将录象机设置于出盒状态。
2. 从电源插座中拔出电源引线插头。
3. 按上述步骤的说明和要求拆去装带装置。

● 装带马达的拆卸

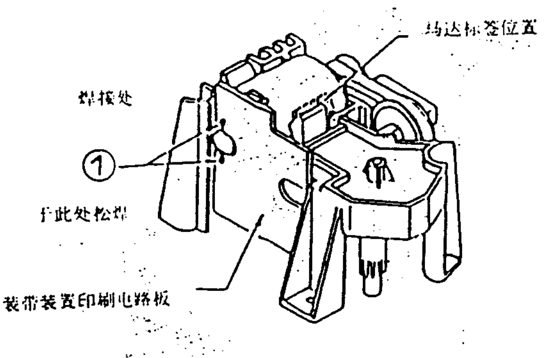
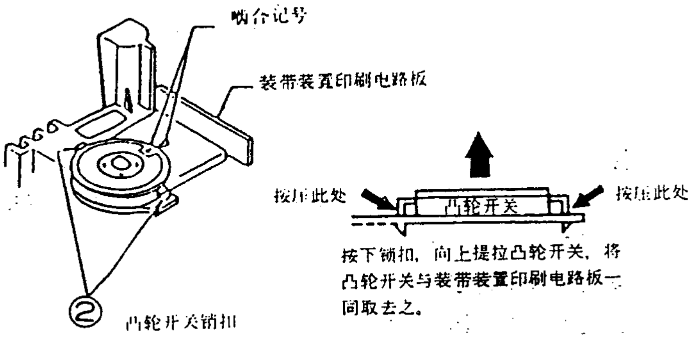

马达标签位置
焊接处
①
于此处松焊
装带装置印刷电路板

图1－68

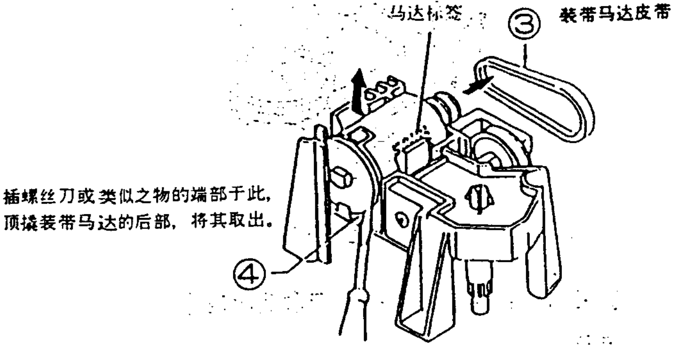
1. 松焊连接于装带马达的引线①。
2. 解除凸轮开关卡扣于装带装置上的左右销扣②。拆下凸轮开关及装带装置印刷电路板。（见图1-69）


啮合记号
装带装置印刷电路板
按压此处
凸轮开关
按压此处
②
凸轮开关销扣

按下销扣，向上提拉凸轮开关，将凸轮开关与装带装置印刷电路板一同取去之。

图1－69

3. 松去装带马达的皮带③。
4. 插螺丝刀或类似之物的端部于图1-70所示的间隙中，撬推装带马达的后部，将其取出。


马达标签
③
装带马达皮带
④

插螺丝刀或类似之物的端部于此，顶撬装带马达的后部，将其取出。

图1－70

● 装带马达的组装

1. 拆去装带马达后，按图1-71所示要求将一新的装带马达安装即位。
2. 按图1-71所示要求安置新准备的装带马达，使马达处于其标签即目可视之位置，并使装带马达轴的螺孔与装带装置上的突出部准确相对，带有箭头标记的马达尾端与之相互对齐。

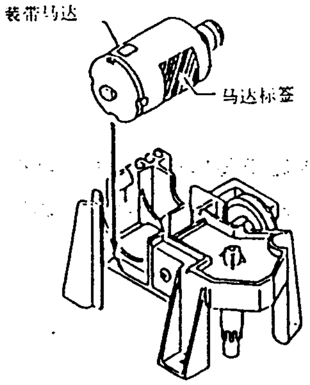
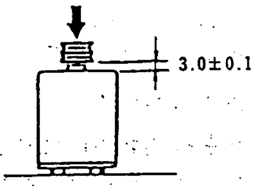


图1－71



注意：
将马达皮带轮压按入位时，其压按力不得大于5kg，马达端头与皮带轮之间的距离不得超过3.0±0.1mm的规定范围。

图1－72

3. 安置装带装置的印刷电路板以及凸轮开关于位。
4. 焊接连接于装带马达的引线。
5. 最后，安置装带装置于位。（见第105页有关项目所述）。
6. 挂上装带皮带。

主凸轮的拆卸和组装

● 主凸轮的拆卸

1. 拆去E形环①。
2. 拆去磁带半载装挂驱动杆②。
3. 拆去E形环③。
4. 拆去紧带轮柄④。
5. 向上拉出主凸轮⑤。

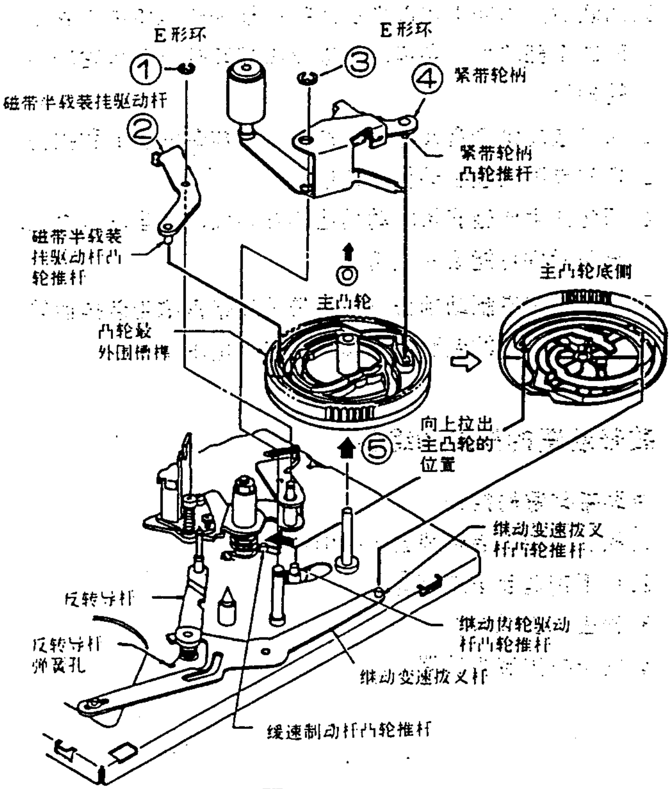

E形环
E形环
①
③
④
紧带轮柄
磁带半载装挂驱动杆
②
紧带轮柄凸轮推杆
磁带半载装挂驱动杆凸轮推杆
◎
主凸轮
主凸轮底侧
凸轮毂外围槽摔
向上拉出主凸轮的位置
⑤
继动变速拨叉杆凸轮推杆
反转导杆
继动齿轮驱动杆凸轮推杆
反转导杆弹簧孔
继动变速拨叉杆
缓速制动杆凸轮推杆

图1－73

● **主凸轮的主装**

1. 置继动齿轮驱动杆于磁带装挂卸除状态之位置。
2. 移动继动变速拔叉杆，使之与主机芯底盘上的反转导杆弹簧孔相触。用手指松卸缓速制动杆，使之与主导轴分离之(按图中箭头所指)。然后，将主凸轮D形切去部分面向图中箭头所指方向安置就位。
3. 置半载往复杆凸轮推杆于主凸轮最外侧的槽榫之中(按图中箭头所指)。然后，套上E形环，安上半载往复杆。
4. 沿顺时针方向转动主凸轮少许，让紧带轮柄凸轮推杆进至主凸轮的槽榫之中(按图中箭头所指)，然后安上紧带轮柄，套上E形环。
5. 用手旋转主凸轮，检查四杆（继动齿轮驱动杆，继动变速拔叉杆，半载往复杆以及紧带轮柄）是否均正确地嵌入主凸轮的槽榫。
6. 装上装带装置。(见第105页有关项目所述)

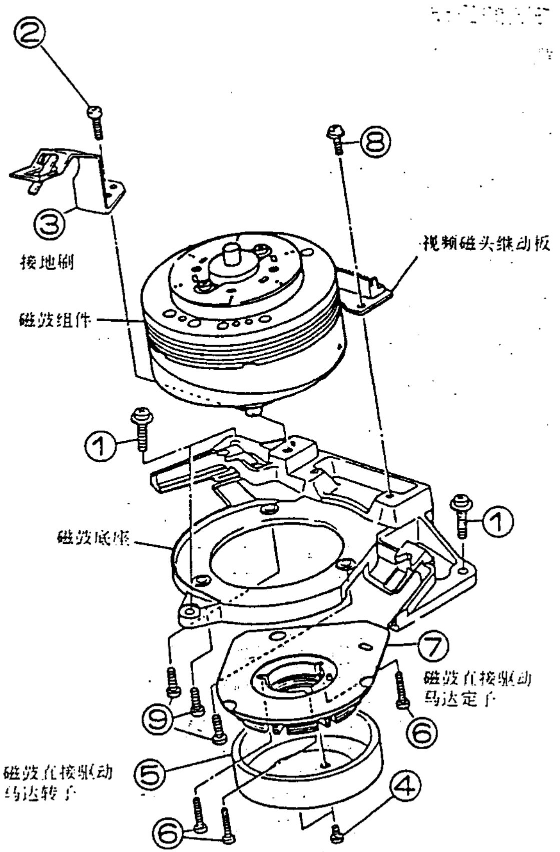
注意：

1. 切勿损伤主凸轮的轮齿以及槽榫。
2. 主凸轮安置完毕，装带装置安置之前，务必先用手转动主凸轮，检查各杆是否正确就位。否则，马达开转时，有造成主凸轮以及各杆损坏之可能。
3. 加注规定之油于主凸轮各槽榫以及轮齿加以润滑。

磁鼓组件的装卸

● **磁鼓的拆卸**

1. 从视频磁头继动板拆去前置放大器印刷电路板。
2. 拆去机壳底板(请参照机壳部件图中No.603)。
3. 拆去磁鼓直接驱动马达连接器(ME)。
4. 松去磁鼓底座安装螺丝①，从主机芯底盘取出磁鼓组件。
5. 松去接地刷组件的紧固螺丝②，拆去接地刷组件③。
6. 松去磁鼓直接驱动马达转子的两只安装螺丝④，取出磁鼓直接驱动马达转子⑤。
7. 松去磁鼓直接驱动马达定子的三只安装螺丝⑥，取去磁鼓直接驱动马达定子⑦。
8. 松去视频磁头继动板的两只安装螺丝⑧。
9. 松去磁鼓组件的三只安装螺丝⑨，从磁鼓底座上取出磁鼓组件。



注意：

组装固定磁鼓直接驱动马达转子组件时，必须将其安装孔与下部磁鼓的安装孔对齐。

图1—74

● 磁鼓的组装

注意：

1. 安置磁鼓就位前，必须先检查鼓盘底表面和边缘有否伤痕，有否尘埃。
2. 安置磁鼓就位前，必须先检查上部磁鼓的内部表面和底表面有否伤痕，有否尘埃。
3. 安置上部磁鼓就位时，必须保持上部磁鼓的绝对垂直，并缓慢地套入下部磁鼓。
4. 安置磁鼓组件时，必须绝对禁止尘埃杂物混入鼓盘与上部磁鼓之间。
5. 扭紧磁鼓安装螺丝时，不得用力过度。

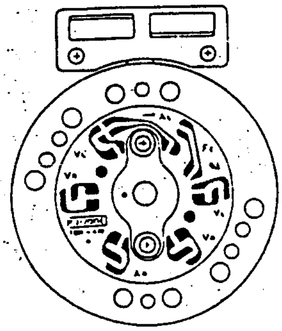


图1－75

1. 将新磁鼓设置就位。
2. 将视频磁头继动板印刷电路设置于图示位置，然后焊接和视头的引线。

注意：

迅速小心焊接磁鼓引线。焊接中，切勿让焊枪触碰磁头附近零件。

3. 安装完毕，先进行走磁情况检查，然后再进行下列的电气调试。
   1)再现转换点的调试。
   2)X位置的检查和调整。
   3)SP和EP方式慢速跟踪预调的调整。

主导轴直接驱动马达的装拆

1. 设装置于磁带出盒状态。
2. 拔出电源插头。

● 马达的拆卸(组装时按其相反顺序进行即可)

1. 拆去FFC(全平电缆)①。
2. 松去直接驱动马达转子组件的二支固定螺丝②。
3. 拉出直接驱动马达转子组件③。
4. 松去直接驱动马达定子组件的三支固定螺丝④。
5. 拆去直接驱动马达定子组件⑤。

注意：

1. 拆去直接驱动马达转子组件时，切勿磕碰装填继动齿轮。
2. 安装时，必须先将直接驱动马达转子组件的安装孔与下部磁鼓组件的安装孔对齐，然后紧密固定之。
3. 操作中，切勿碰伤上部磁鼓和视频磁头。
4. 安装时，必须小心谨慎，切勿损伤霍尔效应器、直接驱动马达定子、转子以及其它组成部件。
5. 更换组装完毕，必须进行再现转换点的调试。

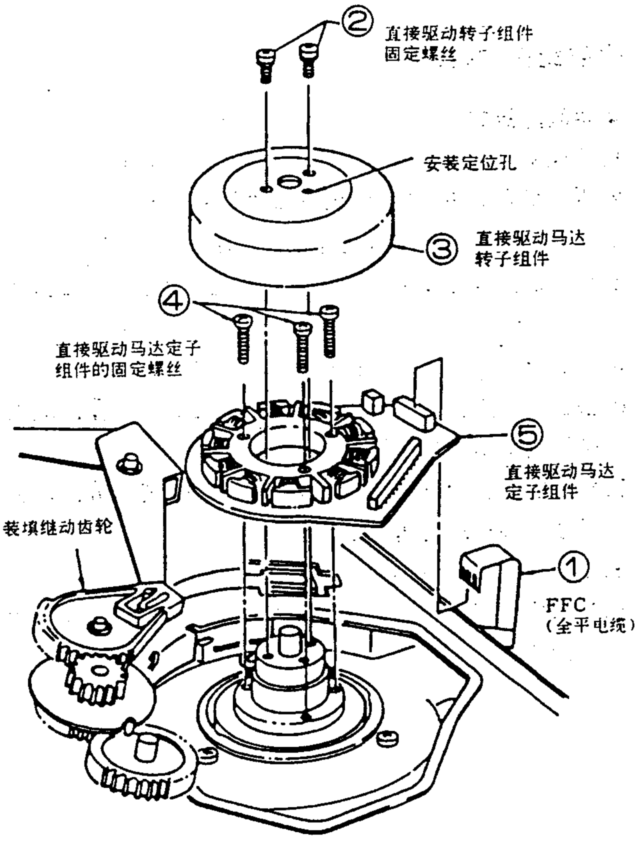

②
直接驱动转子组件
固定螺丝
安装定位孔
③
直接驱动马达
转子组件
④
直接驱动马达定子
组件的固定螺丝
⑤
直接驱动马达
定子组件
装填继动齿轮
①
FFC
(全平电缆)

图1－76

自动录象头除垢器的拆换

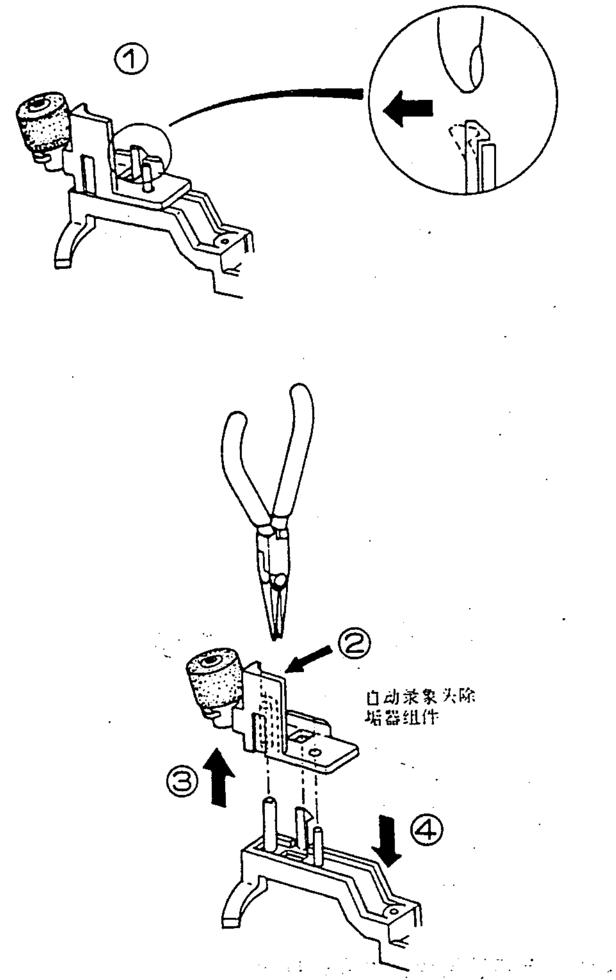


图1－77

●自动录象头除垢器的拆卸

按上图箭头所示方向用手指解除部件①钩扣。

用电工钳或类似之物夹住自动录象头除垢器组件②的肋缘(箭头所指处)，再沿箭头③所示方向，向上拔出自动录象头除垢器组件。

注意：

拔出自动录象头除垢器组件时，必须先按下自动录象头除垢器松放柄。

●自动录象头除垢器的更换

按箭头④所示方向按下自动录象头除垢器组件。扣上部件①的钩扣。

注意：

1.切勿让自动录象头除垢器组件触碰磁鼓。

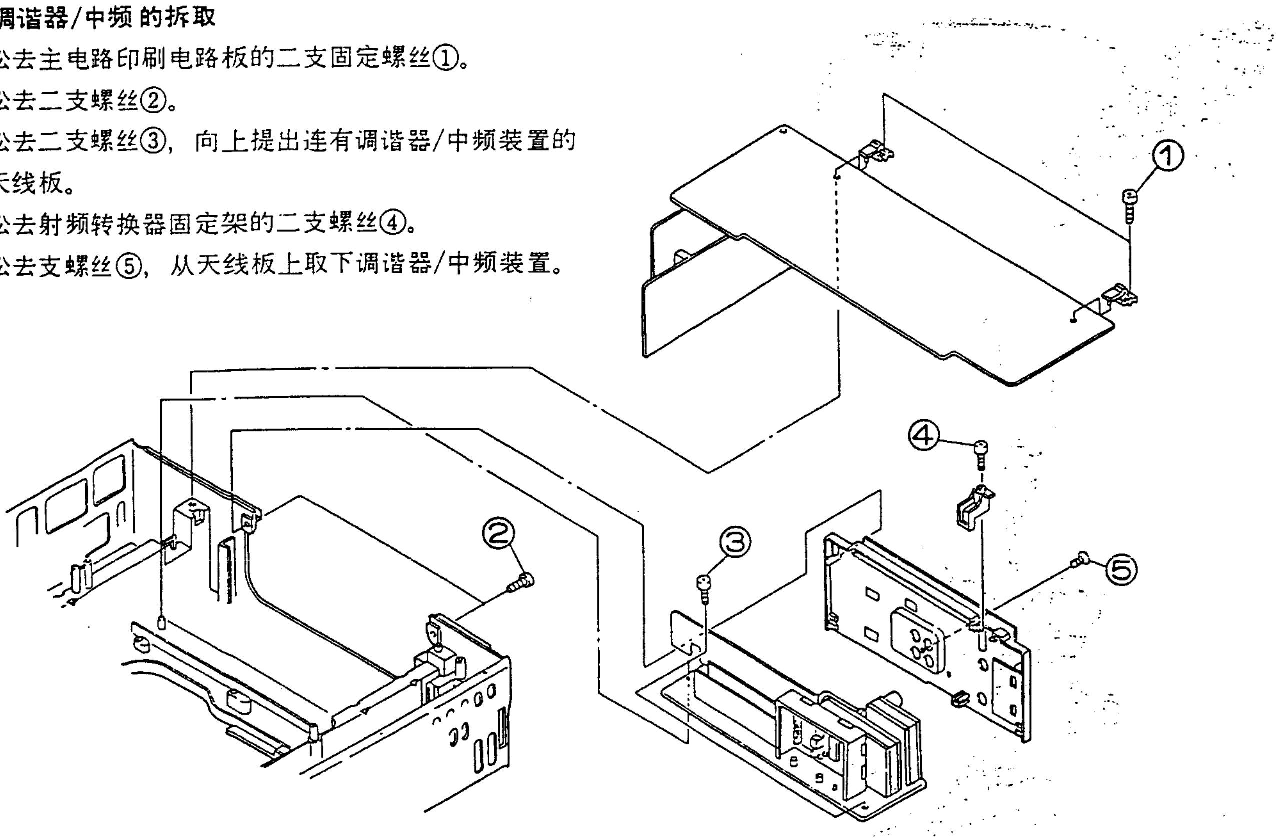
2.切勿让自动录象头除垢器组件的清擦头部分沾有润滑油或其他杂物。

各电路的调试

■ 调谐器/中频 装置和电源电路装置的拆取

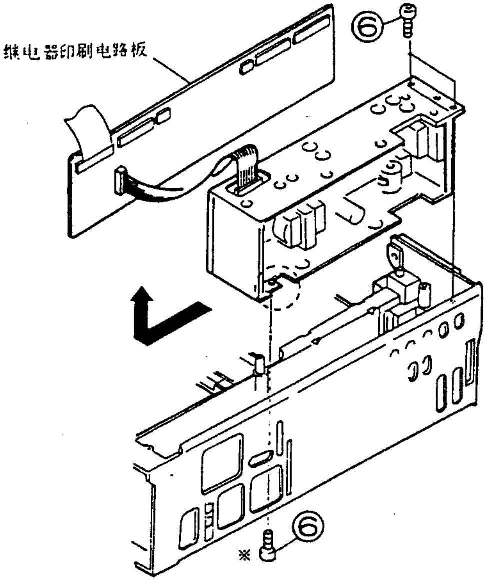
● 调谐器/中频 的拆取

1. 松去主电路印刷电路板的二支固定螺丝①。
2. 松去二支螺丝②。
3. 松去二支螺丝③，向上提出连有调谐器/中频装置的天线板。
4. 松去射频转换器固定架的二支螺丝④。
5. 松去支螺丝⑤，从天线板上取下调谐器/中频装置。



● 电源电路装置的拆取

1. 松去电源电路装置的三支固定螺丝⑥。
2. 向上抽出继电器印刷电路板。
3. 按下图箭头所示方向，先将电源电路装置从壳体框架的卡槽中抽出，然后再向上取出之。



注意：

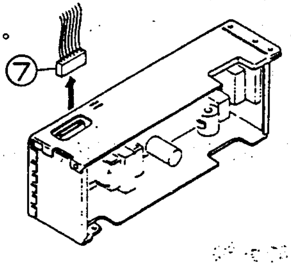
※记号所示螺丝指机壳底板紧固螺丝。

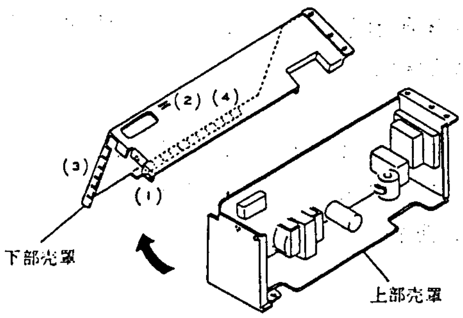
● 电源电路装置保护壳罩的拆取

1. 拔去引线连接器PA⑦。
2. 向下按住上部壳罩，并按下图箭头所示方向转动下部壳罩，拆去之。

注意：

卡扣下部壳罩于上部壳罩时，按(1)~(4)所示位置之顺进行为方便。





电气调试

注：

●调试前

在更换录象机磁头之类的电子元件以及机械部件之后，经常需要进行本节所述的电气调试。
在调试之前，检查机械装置以及所有的电子元件是否处于良好的工作状态，否则，调试不能顺利完成。

●需要的检测用仪器

◎彩色电视机监视器
◎双踪示波器
◎交流毫伏特计
◎计频器
◎校正用磁带(VROCPSV)(PAL)
◎校正用磁带(VROATSV)(NTSC)
◎附加外接连接器(QCNW-6443GEZZ:销2)
◎甚高频频带调幅信号发生器
◎彩条信号发生器
◎直流电电源
◎音频信号发生器
◎直流伏特计
◎ Hi-Fi 校正用磁带 (VROCBFFS) (PAL)
◎校正用磁带(VRONBZZS)(NTSC)
◎校正用磁带(VR9EBZCS)(NTSC)
◎空白录象带
◎调试用螺丝刀
◎场强计

电源电路的调试

检测仪器	直流伏特计
工作状态	录象
测试点	AP连接器的销④ 和接地 (安装在主组件上)
调整点	R916 调试控制
规定要求	6.6±0.1V

1. 将录象机置于录象工作状态，以及将直流伏特计与AP连接器的销 4 (+)及接地(-)连接。
(AP连接器安装在主组件上。)
2. 接录象机于额定电源。
3. 将螺丝刀插入柜架右侧的调节孔内，调节安装在电源组件PWB上的R916，直至伏特计的读数为直流6.6±0.1V。

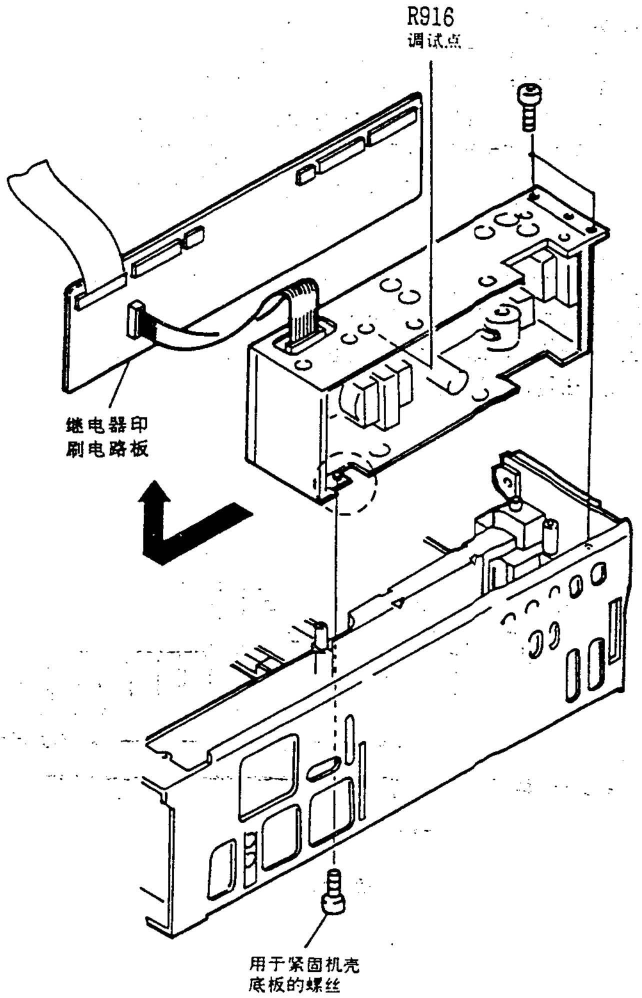


图2-1

伺服电路的调试

PAL制式再现转换点的调试

检测仪器	双踪示波器
工作状态	再现（跟踪旋钮于其正中）
带盒	校正用磁带（VROCPSV）
测试点	频道-1：TP2202 频道-2：视频输出 端子（频道-1触发倾斜开关于(+)，内触发于频道-1）
调整点	R701 PAL相位发生器 M.M.调节控制
规定要求	6.5±0.5H

1. 松开前面板
2. 插入PAL制式的校正磁带(VROCPSV)，再现之。
3. 置跟踪键钮于其中央位置。(见“注”中所述)
4. 将双踪示波器与视频输出端及TP2202连接。
   (频道-1触发倾斜开关于(+)，内触发于频道-1。)
5. 调节 R701， 使磁头干关脉冲前沿走出垂直同步6.5H(行)(示于图2-2)。

注：
置跟踪键钮于其中央位置的方法。(只有再现状态)
①折去盒室机构控制组件。
②用一根引线短接TEST26和TEST27的搭接销(安装在定时器组件上)

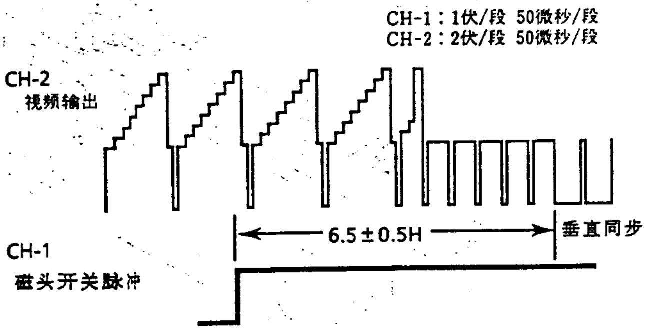


图2-2

PAL制式SP方式慢速跟踪的预调

检测仪器	彩色电视机监视器
工作状态	插入自录磁带，录象后再现之 （参阅下面的注①）
输入信号	电视台节目或视频信号 （外部输入选择开关）
测试点	电视机监视器屏幕
调整点	跟踪调节键钮(+)或(-)
规定要求	电视机监视器屏幕上出现最小的噪声线

1. 要让录象机接收一种电视台节目信号或者向外接视频输入端输入视频信号。
2. 插入自录磁带，用PAL制式SP方式再现之。
3. 用一根引线短接TEST26和TEST27的搭接销，设录象机于测试状态。(参阅下面的注②)
4. 确认电视机荧光显象管亮启正常，然后拆去引线。
5. 触按摇控器上的慢放键钮，以及慢动作再现录有内容的磁带部分。
6. 观察电视机监视器屏幕，同时触按录象机本体或摇控器上的(+)或(-)跟踪键钮，调整跟踪控制，直至噪声线从电视机监视器屏幕上完全消失。
7. 触按停止键钮，跟踪的预调数据被自动记忆之。
8. 触按完全取消键钮，让录象机回至标准工作状态。

注：
①自录磁带指的是一种由被调整的录象机记录程序的带盒。
②TEST26和TEST27的搭接销位于定时器模块TA连接器侧上方。

PAL制式LP方式慢速跟踪的预调

检测仪器	彩色电视机监视器
工作状态	插入自录磁带，录象后再现之 （参阅下面的注①）
输入信号	电视台节目或视频信号 （外部输入选择开关）
测试点	电视机监视器屏幕
调整点	跟踪调节键钮(+)或(-)
规定要求	电视机监视器屏幕上出现最小的噪声线

1. 要让录象机接收一种电视台节目信号或者向外接视频输入端输入视频信号。
2. 插入自录磁带，用PAL制式LP方式再现之。
3. 用一根引线短接TEST26和TEST27的搭接销，设录象机于测试状态。(参阅下面的注②)
4. 确认电视机荧光显象管亮启正常，然后拆去引线。
5. 触按摇控器上的慢放键钮，以及慢动作再现录有内容的磁带部分。
6. 观察电视机监视器屏幕，同时触按录象机本体或摇控器上的(+)或(-)跟踪键钮，调整跟踪控制，直至噪声线从电视机监视器屏幕上完全消失。
7. 触按停止键钮，跟踪的预调数据被自动记忆之。
8. 触按完全取消键钮，让录象机回至标准工作状态

注：

①自录磁带指的是一种由被调整的录象机记录程序的带盒。

②TEST26和TEST27的搭接销位于定时器模块TA连接器侧上方。

PAL制式暂停／静止画面垂直同步的调试

检测仪器	彩色电视机监视器
工作状态	插入自录磁带，再现静止画面 （参阅下面的注）
输入信号	电视台节目或视频信号 （外部输入选择开关）
测试点	电视机监视器屏幕
调整点	跟踪调节键钮(+)、(-)
规定要求	画面无垂直抖动

1. 要让录象机接收一种电视台节目信号或者向外接视频输入端输入视频信号。
2. 插入自录磁带，用PAL制式SP方式再现之。
3. 触按录象机本体或摇控器上的暂停／静止键钮，以及以SP方式再现录有内容的磁带部分。
4. 观察电视机监视器屏幕，同时触按录象机本体或摇控器上的(+)或(-)跟踪键钮，使电视机监视器屏幕上的噪声抖动达至最小程度。
5. 触按停止键钮，暂停／静止的预调数据被自动记忆之。

注：

自录磁带指的是一种由被调整的录象机记录程序的带盒。

NTSC制式再现转换点的调试

检测仪器	双踪示波器
工作状态	再现（跟踪键钮于其正中）
带盒	校正用磁带（VROATSV）
测试点	频道-1：TP2202 频道-2：视频输出 端子（频道-1触发倾斜开关于(+)，内触发于频道-1）
调整点	R704 NTSC相位发生器 M.M.调节控制
规定要求	6.5±0.5H

1. 松开前面板。
2. 插入NTSC制式的校正磁带(VROATSV)，再现之。
3. 置跟踪键钮于其中央位置。(见“注”中所述)
4. 将双踪示波器与视频输出端及TP2202连接。(频道-1触发倾斜开关于(+)，内触发于频道-1。)
5. 调节 R704， 使磁头开关脉冲前沿超出垂直同步6.5H(行)(示于图2-3)。

注：

置跟踪键钮于其中央位置的方法。(只有再现状态)

①拆去盒室机构控制组件。

②用一根引线短接TEST26和TEST27的搭接销，(安装在定时器组件上)。

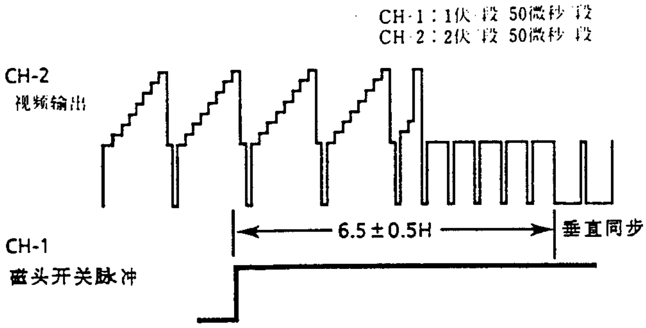


图2-3

NTSC制式SP方式慢速跟踪的预调
电视机监视器屏幕上出现最小的噪声线

检测仪器	彩色电视机监视器
工作状态	再现（SP方式再现）
带盒	校正用磁带（VRONBZZS：SP方式）
测试点	电视机监视器屏幕
调整点	跟踪调节键钮(+)、(-)
规定要求	电视机监视器屏幕上出现最小的噪声线

1. 插入NTSC制式校正磁带(VRONBZZS)，以SP方式再现录有内容的磁带部分。
2. 用一根引线短接TEST26和TEST27的搭接销，设录象机于测试状态。(参阅下面的注)
3. 确认电视机荧光显象管亮启正常，然后拆去引线。
4. 触按摇控器上的慢放键钮，以及慢动作再现录有内容的磁带部分。
5. 观察电视机监视器屏幕，同时触按录象机本体或摇控器上的(+)或(-)跟踪键钮，调整跟踪控制，直至噪声线从电视机监视器屏幕上完全消失。
6. 触按停止键钮，跟踪的预调数据被自动记忆之。
7. 触按完全取消键钮，让录象机回至标准工作状态。

注：

TEST26和TEST27的搭接销位于定时器模块TA连接器侧上方。

NTSC制式EP方式慢速跟踪的预调

检测仪器	彩色电视机监视器
工作状态	再现（EP方式再现）
带盒	校正用磁带（VR9EBZCS：EP方式）
测试点	电视机监视器屏幕
调整点	跟踪调节键钮(+)、(-)
规定要求	电视机监视器屏幕上出现最小的噪声线

1. 插入NTSC制式校正磁带(VR9EBZCS)，以EP方式再现录有内容的磁带部分。
2. 用一根引线短接TEST26和TEST27的搭接销，设录象机于测试状态。(参阅下面的注)
3. 确认电视机荧光显象管亮启正常，然后拆去引线。
4. 触按摇控器上的慢放键钮，以及慢动作再现录有内容的磁带部分。
5. 观察电视机监视器屏幕，同时触按录象机本体或摇控器上的(+)或(-)跟踪键钮，调整跟踪控制，直至噪声线从电视机监视器屏幕上完全消失。
6. 触按停止键钮，慢速跟踪预调数据被自动记忆之。
7. 触按完全取消键钮，让录象机回至标准工作状态。

注：
TEST26和TEST27的搭接销位于定时器模块TA连接器侧上方。

NTSC制式暂停／静止画面垂直同步的调试

检测仪器	彩色电视机监视器
工作状态	静止画面再现
带盒	校正用磁带 (VRONBZZS)
测试点	电视机监视器屏幕
调整点	跟踪调节键钮(+)、(-)
规定要求	画面无垂直抖动

1. 插入NTSC制式校正磁带(VRONBZZS)，以SP方式再现录有内容的磁带部分。
2. 触按录象机本体或摇控器上的暂停／静止键钮，以及以SP方式再现录有内容的磁带部分。
3. 观察电视机监视器屏幕，同时触按录象机本体或摇控器上的(+)或(-)跟踪键钮，调整跟踪控制，使电视机监视器屏幕上的噪声抖动达至最小程度。
4. 触按停止键钮，暂停／静止的预调数据被自动记忆之。

注：
TEST26和TEST27的搭接销位于定时器模块TA连接器侧上方。

●主电路模块各调整点及测试点的位置分布

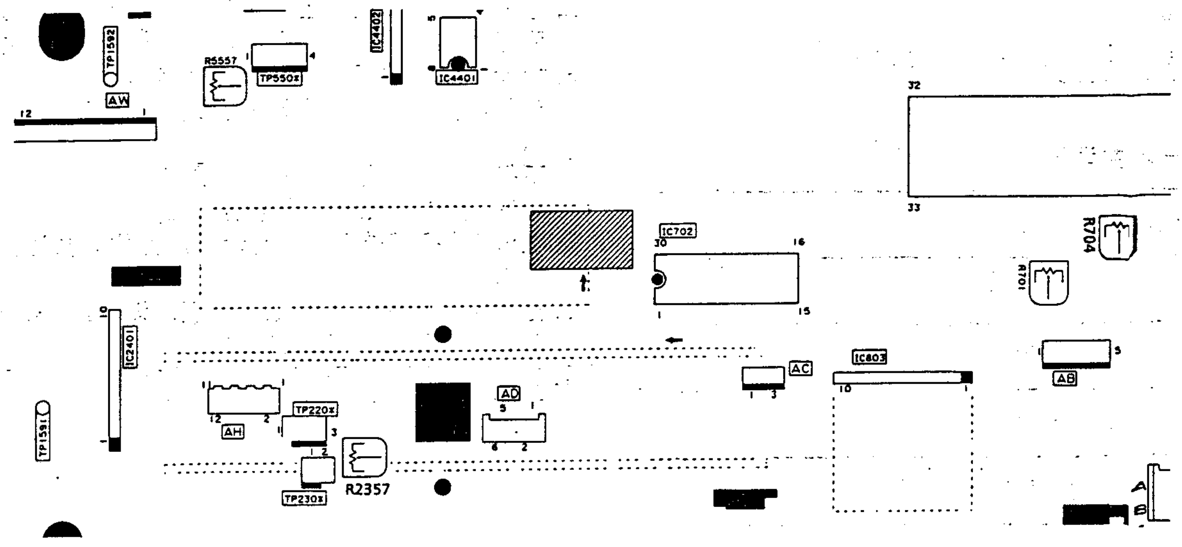

TP1592
AW
12
1
R5557
TP550x
1
4
IC4402
IC4401
5
32
33
IC702
30
16
1
15
R704
R701
10
IC2401
1
TP1591
AH
12
2
TP220x
3
1
2
TP230x
R2357
AD
5
1
6
2
AC
1
3
IC803
10
1
AB
5
A
B

图2—4

亮度／色度信号（Y／C）电路的调整

视频E—E增益调试

检测仪器	示波器
工作状态	停止或录象工作状态（色制：PAL）
输入信号	EBU标准彩条（1.0Vp-p）
测试点	视频输出插座
调整点	R203（E-E电平调节）
规定要求	1.0±0.04Vp-p

1. 把一只75Ω负载电阻连接到视频输出插座上，然后把该负载电阻跨接到示波器上。
   (参阅下面的注①)
2. 把一种彩条信号输入视频输入插座上，以及利用选择频道AV，设录象机处于A/V工作状态。
3. 调节R203(E-E电平)，使示波器屏幕获得图2-5所示信号振幅为1.0Vp-p的规定值。

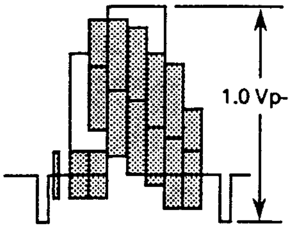


图2-5

注：
①假如75Ω负载电阻松开的话，信号幅度会产生重叠现象。
②调试后，检查调频亮度信号的偏转。
(R204频率和亮度的调试)

再现Y—增益调试

检测仪器	示波器
工作状态	再现
带盒	校正用磁带（VROCPSV）
测试点	视频输出插座
调整点	R201再现Y—增益控制
规定要求	1.0±0.04Vp-p

1. 把一只75Ω负载电阻连接到视频输出插座上，然后把该负载电阻跨接到示波器上。
   (见下面“注”中所述)
2. 再现校正磁带录有彩条的部分，调节R201，如图2-6所示，信号幅度达到1.0Vp-p。

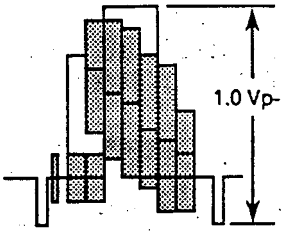


图2-6

注：
假如75Ω负载电阻松开的话，信号幅度会产生重叠现象。

调频载波频率和偏转调试

检测仪器	计频器、示波器
工作状态	录象／再现（色制：PAL）
输入信号	EBU标准彩条（1.0Vp-p）
测试点	TP203（IC201的销40） 视频输出插座
调整点	R205（调频载波调节） R204（偏转调节）
规定要求	3.8±0.05MHz 1.0±0.04Vp-p

1. 确认R203(E-E电平)的调试已符合规定要求。
2. 把一只75Ω负载电阻连接到视频输出插座上，然后把负载电阻跨接到示波器上。(参阅次页的注)
3. 把计频器接到TP203～接地的测试点上。
4. 利用选择频道AV，设录象机处于A/V输入工作状态。
   不得把任何信号输入视频输入插座。
   (折去视频输入端的信号输入线。)
5. 在该条件下调节R205，使计频器上的读数达至3.8兆赫。
6. 把彩条信号输入视频输入插座，调节R204，使计频器上的读数达至4.3兆赫。
7. 在该条件下，把EBU彩条信号录在磁带上，倒带，再现之。

8. 确认再现彩条信号的幅度如图2-7所示，达至1.0±0.04Vp-p。
假如彩条信号电平低于规定值，顺时针方向旋转R204。
假如高于规定值，逆时针方向旋转R204。之后，重新自录，再现之。
9. 重复7～8步骤，直至信号电平达至规定值。

注：
假如75Ω负载电阻松开的话，信号幅度会产生重叠现象。

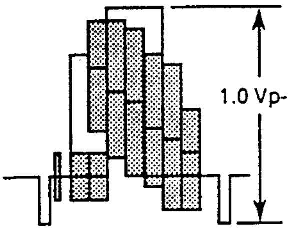


图2-7

Y／C录象电流的调试

检测仪器	示波器
工作状态	录象（LP工作状态）(色制：PAL)
输入信号	EBU标准彩条（1.0Vp-p）
测试点	TP301（SIG，信号端） TP302（GND，接地端）
调整点	R504（色度控制） R208（调频—亮度控制）
规定要求	色度(红)：23±2mVp-p 同步脉冲顶部：83±5mVp-p

1. 把彩条信号输入视频输入插座，利用选择频道AV，设录象机处于A/V工作状态。
2. 把示波器接到安装在磁头放大组件上的测试点TP301(信号)和TP302(接地)上。(请见下注)
3. 设录象机处于录象状态，磁带速度即不是LP方式(也不是SP方式)。
4. 旋转R208，使调频亮度信号于最小。
5. 调节R504，使红色部分的电平幅度达至图2-8(a)所示的规定要求。
6. 调节R208，使同步脉冲幅度达至图2-8(b)所示的规定要求。
7. 假如使用的话，请拆去附加外接测试点。

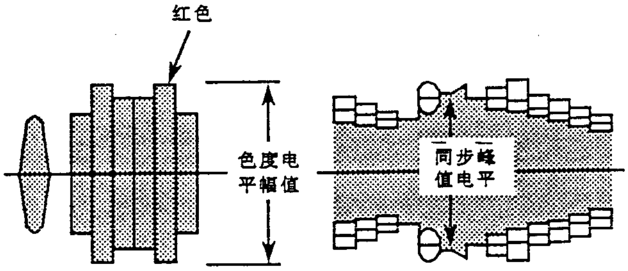

红色
色度电平幅值
同步峰值电平

图2-8(a)　　图2-8(b)

注：
为方便示波器的连接，要在这些测试点上使用QCNW-6443GEZZ。

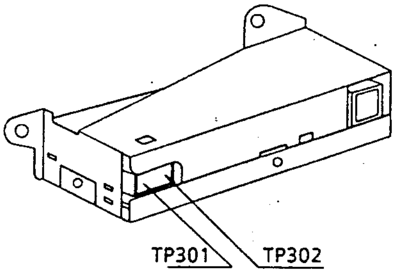

TP301
TP302

图2-9

●Y/C电路模块各调整点及测试点的位置分布

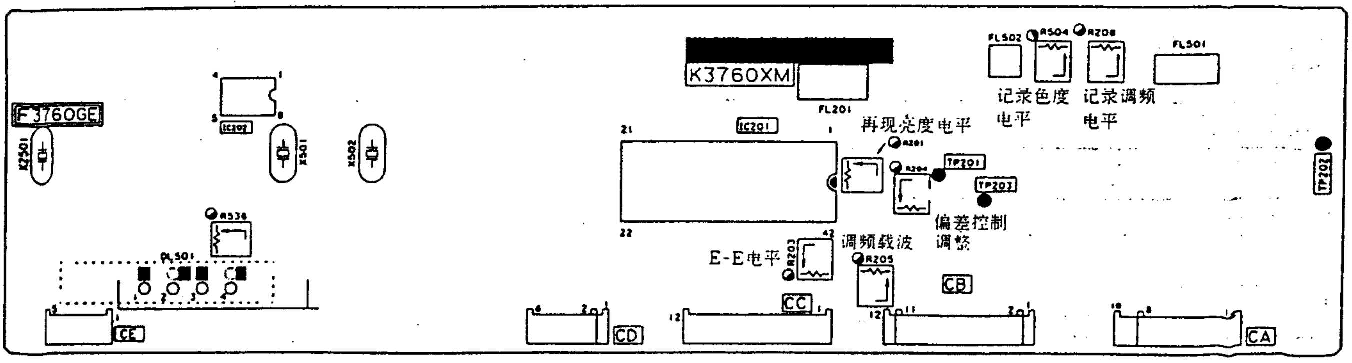

F3760GE
X2501
IC207
X501
X502
R536
QL501
CE
K3760XM
FL201
IC201
21
1
22
42
再现亮度电平
R201
R204
TP201
TP203
偏差控制调整
调频载波
R205
E-E电平
R203
CC
CD
CB
FL502
R504
R208
FL501
记录色度电平
记录调频电平
TP202
CA

图2—10

SECAM制式色度电路的调整

贝尔滤波器的调整

（仅限于VC-H91/H91ETS两型号）

检测仪器	示波器
工作状态	记录（SP方式）
输入信号	EBU标准SECAM制式彩条信号 （1.0Vp-p）
测试点	TP5302（信号）、TP5301（接地）
调整点	FL5304（4.3MHz贝尔滤波器）
规定要求	————

1. 向录象机视频输入插座插入SECAM制式彩条信号。选择“A/V”频道，设录象机于A/V工作状态。
2. 接示波器于TP5302（信号）及TP5301（接地）。（触发TP5303）
3. 设录象机于SP走带方式的记录工作状态。（非LP方式）
4. 调节FL5304（4.3MHz贝尔滤波器），使示波器上红色与蓝色的平坦部分重合，达至图2-12的所示要求。

注：

TP5302（信号）、TP5301（接地）以及FL5304（4.3MHz贝尔滤波器）位于SECAM制式色度电路信号模块之上。

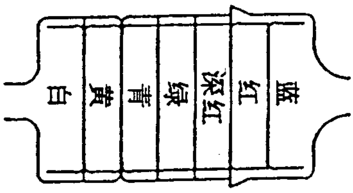


图2-12

记录均衡器的调整

（仅限于VC-H91/H91ETS两型号）

检测仪器	示波器
工作状态	记录（SP方式）
输入信号	EBU标准SECAM制式彩条信号 （1.0Vp-p）
测试点	TP5305（信号）、TP5301（接地）
调整点	FL5306（1.1MHz贝尔滤波器）
规定要求	————

1. 向录象机视频输入插座插入SECAM制式彩条信号。选择A/V频道，设录象机于A/V频道的A/V工作状态。
2. 接示波器于TP5305（信号）及TP5301（接地）。（触发TP5303）
3. 设录象机于SP走带方式的记录工作状态。（非LP方式）
4. 调节FL5306（1.1MHz贝尔滤波器），使示波器上绛红的双重部分重合，达至图2-13的所示要求。

注：

TP5305（信号）、TP5301（接地）以及FL5306（1.1MHz贝尔滤波器）位于SECAM制式色度电路信号模块之上。

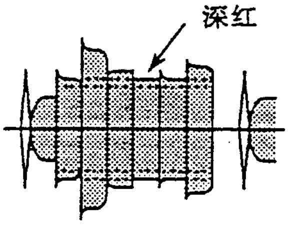


图2-13

同步选通状态的调整

（仅限于VC-H91/H91ETS两型号）

检测仪器	双轨迹示波器
工作状态	记录（SP方式）
输入信号	EBU标准SECAM制式彩条信号 （1.0Vp-p）
测试点	CH-1:TP5304（色度信号） TP5301（接地） CH-2:TP5303（水平同步信号） TP5301（接地）
调整点	R5310（同步选通调整A） R5311（同步选通调整B）
规定要求	选通（A）:2.0±0.2微秒 选通（B）:3.8±0.1微秒

1. 向录象机视频输入插座插入SECAM制式彩条信号。选择A/V频道，设录象机于A/V工作状态。
2. 接双轨迹示波器于录象机CH-1的TP5304（色度信号）和TP5301（接地）以及CH-2的TP5303（水平同步信号）和TP5301（接地），使色度信号输出与图2-14的所示一致。
3. 设录象机于SP走带方式的记录工作状态。（非LP方式）

4. 调节R5310(同步选通调整A)和R5311(同步选通调整B)，使TP5304（色度信号）输出波形与TP5303（水平同步信号）输出波形间的间隔A、B相互影响。

注：
TP5304(色度信号)、TP5303(水平同步信号)、TP5301(接地)、R5310(同步选通调整A)以及R5311（同步选通调整B）位于SECAM制式色度信号电路模块上。

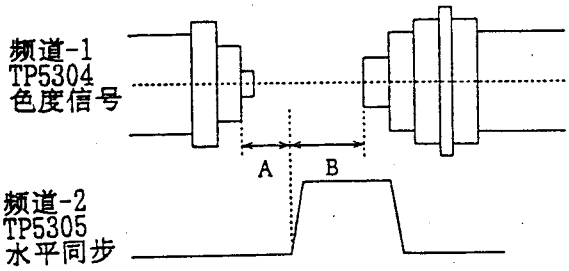

频道-1
TP5304
色度信号
A
B
频道-2
TP5305
水平同步

图2-14

再现均衡器的调整
（仅限于VC-H91/H91ETS两型号）

检测仪器	示波器
工作状态 使用磁带	再现 校正用磁带(VROCSSV)
测试点	TP5304(信号)、TP5301(接地)
调整点	FL5303(1.1MHz再现贝尔滤波器)
规定要求	——————

1. 接示波器于TP5304(信号)及TP5301(接地)。
2. 再现校正用磁带(VROCSSV)录有SECAM制式彩条的部分。
3. 调节FL5303(1.1MHz再现贝尔滤波器)，使红色与蓝色的平坦部分重合，达至图2-15的所示要求。

注：
TP5304(信号)、TP5301(接地)以及FL5303(1.1MHz再现贝尔滤波器)位于SECAM制式色度电路信号模块之上。

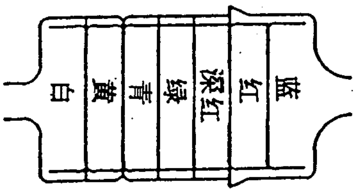


图2-15

SECAM制式记录电流的调整
（仅限于VC-H91/H91ETS两型号）

检测仪器	示波器
工作状态	记录(SP方式)
输入信号	EBU标准SECAM制式彩条信号(1.0Vp-p)
测试点	TP301(信号)、TP302(接地)
调整点	R5348(记录色度调整)
规定要求	23±1mVp-p(LP方式时)

1. 向录象机视频输入插座输入SECAM制式彩条信号。选择A/V频道，设录象机于A/V工作状态。
2. 接示波器于TP301(信号)和TP302（接地）。TP301（信号）及TP302(接地)位于前置放大器电路模块之上。
3. 设录象机于SP或LP走带方式的记录工作状态。
4. 用一只47μF/16V电解电容器短接TP203和接地，使FM调频亮度信号达至最小。
5. 调节R5348（记录色度调整），使青色部分的幅值达至如图2-16所示的23±1mVp-p之规定要求（LP方式时）。

注：
R5348（记录色度调整）位于SECAM制式色度信号电路模块之上。

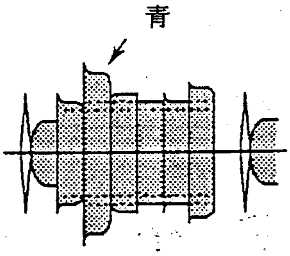


图2-16

- SECAM制式色度信号电路模块各调整点及测试点的位置公布

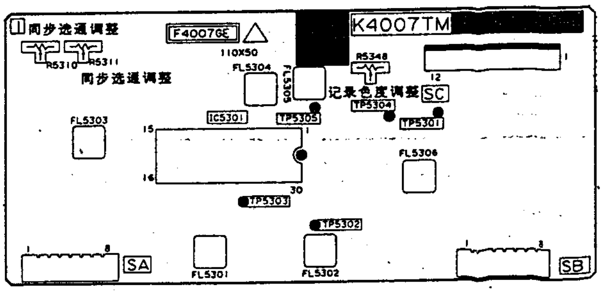

同步选通调整
R5310
R5311
同步选通调整
F4007GE
110X50
K4007TM
R5348
记录色度调整
SC
FL5304
FL5305
TP5304
TP5305
TP5301
IC5301
FL5303
FL5306
15
1
16
30
12
TP5303
TP5302
SA
SB
FL5301
FL5302
1
8

图2-17

NTSC制式变换至PAL制式/AI/IF电流的调试

NTSC制式→PAL制式信号变换电路的调试

检测仪器	计频器
工作状态	再现
带盒	校正用磁带 (VROATSV)
测试点	TP5502 (SIG, 信号端) TP5501 (GND, 接地端)
调整点	R5557 (VCO调节)
规定要求	15735±20Hz

1. 再现校正磁带(VROATSV), 设彩色方式选择开关于“AUTO”位置。
2. 用一根两头带夹箝的引线短接TP5504(IC5501的销15)和TP5503(PC5V)。
3. 把计频器接到测试点TP5502(信号)和TP5501(接地)上。
   调节R5557, 使计频器上的读数达至15735±20Hz的规定要求。
   (然而, 于上述的步骤2, 自激状态发生时, 产生±30Hz的牵引频率。)
4. 拆去短接TP5502和TP5503间的引线, 检查PAL制式时彩色图象是否正常呈现。(通过PAL制式彩色电视机或带有 PAL制式的多制式彩色电视机观察之。)

图象自动控制的调试

检测仪器	直流伏特计
工作状态	以SP方式录象和再现自录磁带 (色制: PAL)
输入信号	EBU标准彩条信号
测试点	TP2301 (SIG, 信号端) TP2302 (GND, 接地端)
调整点	R2357 (图象控制调节)
规定要求	2.6±0.1VDC

1. 确认Y/C录象电流(R208, R504)的调试已符合规定要求。
2. 设图象自动控制选择开关于“ON”或“AUTO PICTURE”之位置。并设图象色调调节于中间位置。
3. 把直流伏特计接在测试点TP2301(+)和TP2302(-)上, 调节R2357, 使直流伏特计上的读数达至直流2.6±0.1V。

NTSC制式变形的调整

NTSC制式变形补偿的调整

检测仪器	双轨迹示波器及电视机监视器
工作状态	再现(SP方式静止动作)
使用磁带	校正用磁带 (VROATSV)
测试点	CH-1:TP2202(磁头开关脉冲) CH-2:视频输出端
调整点	R4411(NTSC制式变形的调整)
规定要求	电视机监视器荧屏上无晃抖

1. 装入校正用磁带 (VROATSV), 再现之(SP方式静止动作状态)。
2. 接双轨迹示波器的CH-1于TP2202 (磁头开关脉冲)、CH-2于视频输出端。
3. 通过示波器观察TP2202 (磁头开关脉冲) 及视频输出端的输出波形。
4. 调节R4411 (NTSC制式变形调整), 使CH-1输出(磁头开关脉冲的高电平)与CH-2输出(磁头开关脉冲的低电平)之间的电平差达至±0.1V。
5. 如电视机监视器荧屏上的色彩晃抖较明显, 微调R4411, 使荧屏上的晃抖程度达至最小程度。

注: TP2202 (磁头开关脉冲) 和R4411 (NTSC制式变形调整) 位于主电路模块之上。

●主电路模块各调整点及测试点的位置公布

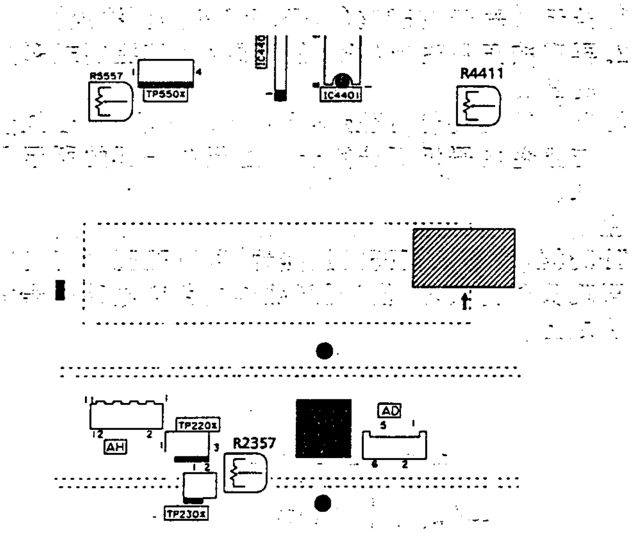


图2-18

在屏表示电路的调整

在屏表示自动频率控制的调试

检测仪器	计频器
工作状态	蓝色背景
测试点	TP5901(信号),TP5903(接地)
调整点	R5912,自动频率控制
规定要求	15.625±0.2kHz

1. 接计频器于位于终端电路印刷电路板上的TP5901(信号)和TP5903(接地)之间。
2. 触按遥控器上的在屏表示键，让字符表示于电视屏幕。
3. 通过一只1kΩ电阻向TP5902加直流5V电压。（或设录象机于无接收设定的TV频道）。
4. 调节R5912，使计频器上的读数达至15.625的规定要求。
5. 拆去1kΩ电阻（或设录象机于有内容设定的TV频道),检查表示于电视屏幕(非蓝色背景状态)上的字符，是否有晃抖、歪斜现象。

在屏表示水平尺寸的调试

检测仪器	示波器和监视电视机
工作状态	在屏表示
测试点	视频输出插座
调整点	C5901,文子表示位置控制
规定要求	56±1微秒

1. 接示波器于视频输出插座。
2. 触按遥控器上的在屏表示键，让字符表示于电视屏幕。
3. 调节C5901,使水平同步与字符脉冲间的时间达至如图2－19所示的56微秒的规定要求。
4. 检查在屏表示字符的表示位置是否位于电视屏幕之左侧或右侧位置过远。

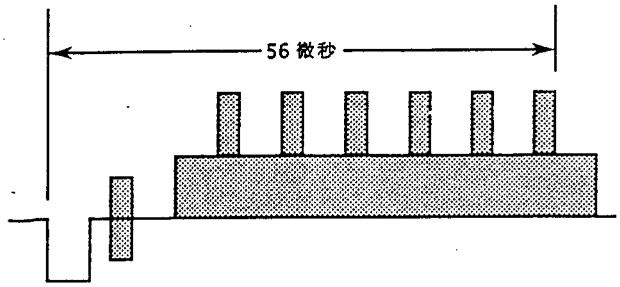


图2－19

● 终端电路模块各调整点和测试点的位置分布

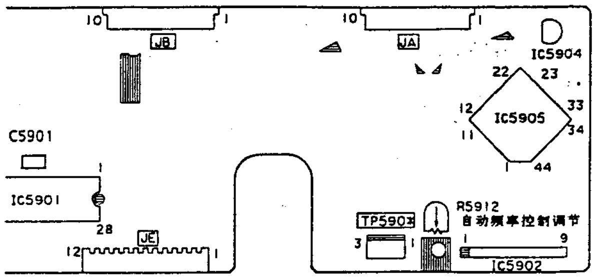


图2－20

AFT电路的调试

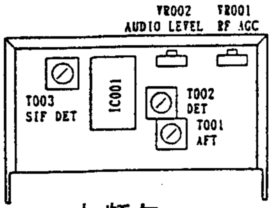
检测仪器	示波器 甚高频频带调幅信号发生器
工作状态	正常地接收电视台节目信号
输入信号	PIF频率单频信号
测试点	IC1501销(8)(视频输出信号) IC1501销(5)（接地） 位于调谐器/中频包电路模块上
调整点	AFT线圈控制
规定要求	———————

1. 要让录象机正常地接收电视台节目信号。(输入磁场强度：天线端的70dBμV)
2. 使用甚高频带调幅信号发生器，向调诸器中频输出端输入PIF频率(38.9兆赫)信号(正弦波)。
3. 接示波器于IC1501销(8)(视频输出信号)和IC1501销(5)(接地)之间。
4. 将调谐开关或键钮设于VHF或UHF位置，触按调谐键的(+)或(-)，直到所需的电视台频道节目清晰地出现在电视机上，以及将示波器屏幕上表现出来的差拍调至到最小。
将频道设定开关或键钮设于设定位置上。
5. 旋转自动微调线圈芯，使示波器屏幕上显示的拍频达至最小程度。(自动微调线圈位于中频包装置之上)。

PIF频率表

型式	频率
VC-H91/H91ETS VC-H96/H96ETS VC-H980/H980ETS	38.9MHz

图2－21


VR002
AUDIO LEVEL
VR001
RF AGC
T003
SIF DET
IC001
T002
DET
T001
AFT

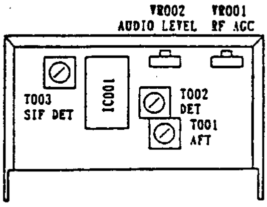
中频包

图2－22

射频自动增益控制(RF AGC)电路的调试

检测仪器	示波器
工作状态	正常地接收电视台节目信号 分裂场彩条信号
测试点	IC1501销(8)(视频输出信号) IC1501销(5)(接地) 位于调谐器/中频包 电路模块上
调整点	VR001自动增益控制
规定要求	收缩前瞬间(参阅图2－23)

1. 要让录象机正常地接收电视机节目信号。
   (输入磁场强度：天线端的80dBμV)
2. 接示波器于IC1501销(8)(信号)和IC1501销(5)(接地)之间。
3. 观察示波器屏幕上表示的视频输出端输出波形。调节中频组件上的VR001(自动增益控制),直到示波器屏幕上的噪声信号消失以及波形接近同步。


VR002
AUDIO LEVEL
VR001
RF AGC
T003
SIF DET
IC001
T002
DET
T001
AFT

中频包

图2－23

音频电平的调整

检测仪器	交流毫伏计
输入信号	射频信号（话音信号1kHz ± 50Hz偏差，调制因数100%）
测试点	Q1509的发射极、接地端（位于调谐器/中频装置电路模块之上）
调整点	VR002（音频电平控制）
规定要求	-13 ± 2dBs

1. 接收天线端传来的最清楚的射频信号。
2. 接交流毫伏计于Q1509的发射极和接地端。
3. 调节VR002（音频电平控制），使交流毫伏计上的读数达至-13dBs的规定要求。

● 调谐器/中频包电路模块各调整点及测试点的位置分布

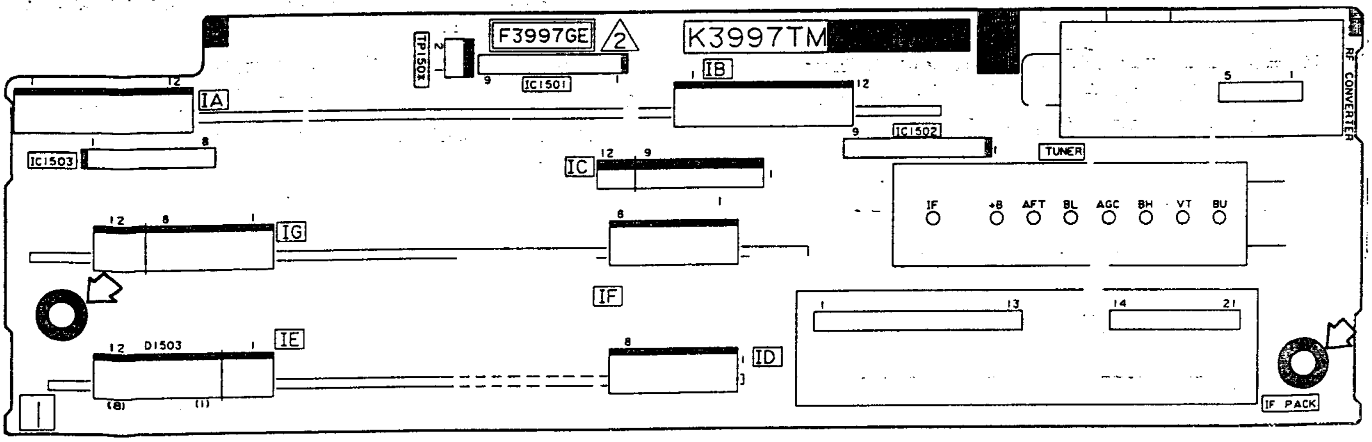

F3997GE
2
K3997TM
TP150X
IC1501
IA
IB
IC1502
IC1503
TUNER
RF CONVERTER
IC
IG
IF
IE
ID
D1503
(8)
(1)
IF
+B
AFT
BL
AGC
BH
VT
BU
IF PACK

图2－24

NICAM电路的调整

NICAM检波电路的调整

（仅限VC-H96/H96ETS/H980/H980ETS四型号）

检测仪器	双轨迹示波器
输入信号	接收图象清楚的电视节目（射频NICAM信号）
工作状态	E-E(B/G,I或双重方式)
测试点	TP1703(CH-B)、TP1702(CH-A) TP1701(接地)
调整点	T1601(网眼图案控制)(位于SIF/MPX电路模块之上)
规定要求	见图2-25

1. 让录象机接收图象清楚的电视节目。检查电视机监视器荧幕上的图象、色彩是否清晰、有无晃抖现象。
2. 接X-Y方式的双轨迹示波器于TP1703（CH-B）和TP1701(接地)以及TP1702(CH-A)和TP1701(接地）。
3. 通过X-Y方式接续，观察示波器上呈现的输出波形。
4. 调节T1601(网眼图案控制)，消除双轨迹示波器荧屏上呈现的噪声影响。

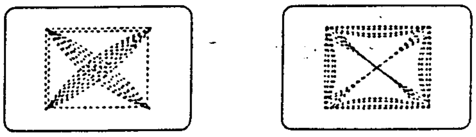
注意：信噪比并非为最佳之场合

①设定于B/G方式时

调节SIF/MPX调制的T1601（网眼图案控制），直至示波器显示出的重叠圆形部分转移至中心位置为止。

②设定于I方式时

调节SIF/MPX调制的T1601（网眼图案控制），直至示波器显示出的交叉线条部分为最小，并使之转移至中心位置为止。


B/G方式时的
网眼图案

I方式时的
网眼图案

图2-25

● SIF/MPX电路各调整点及测试点的位置分布

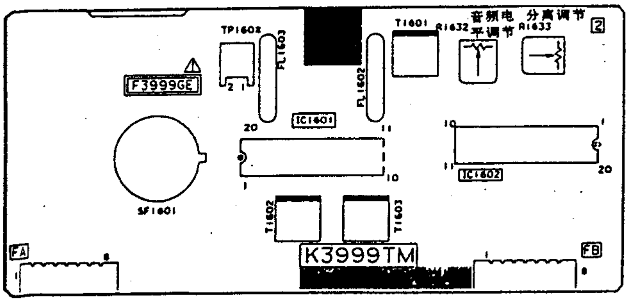

TP1602
FL1603
F3999GE
2 1
IC1601
20
11
1
10
FL1602
T1601
R1632
音频电平调节
分离调节
R1633
2
10
1
11
20
IC1602
SF1601
T1602
T1603
K3999TM
FA
FB
1
8

图2-26

VCXO电路的调整

（仅限VC-H96/H96ETS/H980/H980ETS四型号）

检测仪器	计频器
输入信号	无信号（断开天线端连接）
工作状态	E-E(B/G,I或双重方式)
测试点	IC1701的销(9)(信号)、 TP1701(接地)
调整点	R1723(B/G方式时VCXO控制) R1724(I方式时VCXO控制) （位于NICAM电路模块之上）
规定要求	5.850MHz ± 1kHz(B/G方式) 6.552MHz ± 1kHz(I方式)

1. 不向射频天线端输入任何信号。（断开天线端连接、或拔出天线插头）。
2. 接计频器于下列项目端：
   (1)AT5V线路
   (2)IC1701的销(8)(R1725与R1726的交点)
   (3)分频输入
   (4)接地

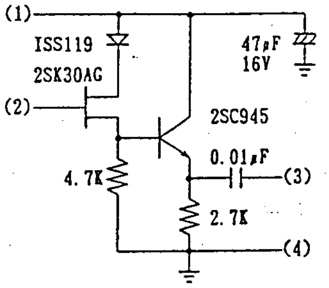

(1)
ISS119
2SK30AG
47μF
16V
(2)
2SC945
0.01μF
4.7K
(3)
2.7K
(4)

图2-27

3. 慢慢旋动调节R1723和R1724，使计频器上读数达至规定要求之数值。

注：

接收制式的B/G、I方式的选择开关S5903位于录象机背面板上。

●NICAM电路各调整点及测试点的位置分布

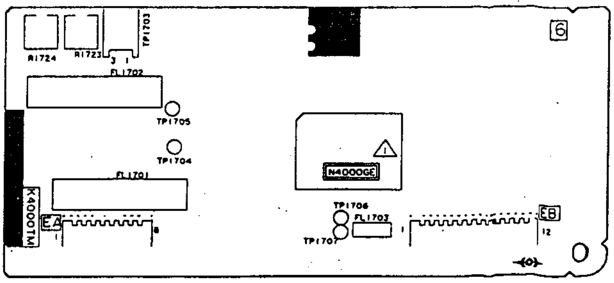

R1724
R1723
3 1
TP1703
6
FL1702
TP1705
TP1704
FL1701
N4000GE
K4000TM
EA
1
8
TP1706
FL1703
TP1707
1
12
EB

图2-28

Hi-Fi音频电路的调整

调整Hi-Fi音频电路的注意要点

1. Hi-Fi音频电路可以不用电位器而用固定电阻器。因此，调整Hi-Fi音频电路时，需要用微调电阻器暂时代替这些固定电阻器，其要领如图2-29所示。
   所用微调电阻器的零件代码表示于每个调整过程表中。

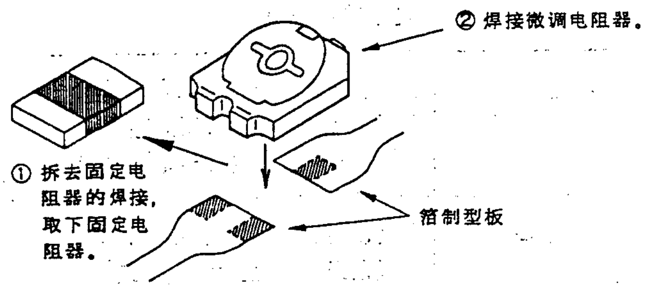
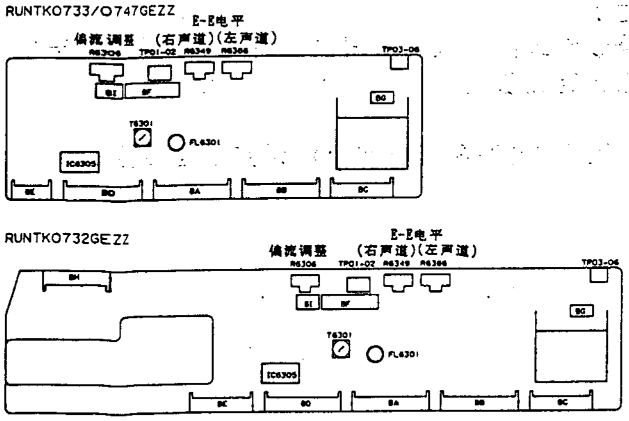


图2-29

2. 每项调整的步骤均以左声道为其准叙述。右声道的调整可以此类推。
   记于括号“[ ]”中的零件代码，数值是右声道调整叙述之简化。
3. Hi-Fi音频电路模块的功用
   1)记录工作状态
   记录电视节目的立体声信号以及为其作控制调节
   2)再现工作状态
   演放磁带录音以及为其作控制调节（无Hi-Fi音响时，触按(+)或(-)按键，调节跟踪，使显示器上“L”（左声道)和“R”(右声道)的字样亮启，并消去磁头开关噪声的影响。）

●Hi-Fi音频电路模块各调整点及测试点的位置分布


RUNTK0733/0747GEZZ

RUNTK0732GEZZ

图2-30

E-E增益的调整

检测仪器	交流毫伏计
工作状态	E-E(PAL制式)
输入信号	1kHz,-8dBs(于RCA插孔)
测试点	音频输出插孔
调整点	R6366A[R6349A](E-E增益控制)
规定要求	−8±1dBs (于RCA插孔)

1. 选择“AV”频道，设录象机于A/V输入工作状态。并向其音频输入插孔的左声道插孔输入上表所述的音频信号。
2. 接交流毫伏计于音频输出的左、右声道插孔。
3. 设ATT开关于OFF位置。
4. 调节R6366[R6349]，使毫伏计上的读数达至-8dBS的规定要求。

FM调频载波频率的调整

调整方法：

如微调电阻器R6370[R6367]以及R6371[R6368]被拆去，请分别用调整控制器RVR-M4772GEZZ (10kΩ)代替之。然后，再按下述步骤进行之。

检测仪器	计频器
工作状态	记录
输入信号	无必要
测试点	TP6304(信号)、TP6306(接地)
调整点	R6370[R6367](NTSC制式FM调频载波控制) R6371[R6368](PAL制式FM调频载波控制) 替换零件代码:RVR-M4772GEZZ (10kΩ)
规定要求	1.3[1.7]MHz ± 5kHz(NTSC制式时) 1.4[1.8]MHz ± 5kHz(PAL制式时)

1. 选择“AV”频道，设录象机于A/V输入工作状态。不输入任何信号。
2. 设录象机于记录工作状态。接计频器于TP6304 (信号)及TP6306（接地）。
3. 调节微调电阻器R6370[R6367]（NTSC制式FM调频载波控制）使计频器上的读数达至1.3[1.7]MHz的规定要求。
4. 再调节R6371[R6368]（PAL制式FM调频载波控制），使计频器上读数达至1.4[1.8]MHz的规定要求。
5. 调节、检查计频器上的读数是否符合规定要求。

音频磁头转换点的检查

检测仪器	双轨迹示波器
工作状态	再现
使用磁带	校正用磁带（VROCBFFS）
测试点	TP6305(信号)、TP6306(接地) （音频磁头开关脉冲）
	TP6303(信号)、TP6306(接地) 再现包络线）
规定要求	大于100微秒

1. 双轨迹示波器于TP6305（信号）和TP6306（接地）（音频磁头开关脉冲）以及TP6303（信号）和TP6306（接地）（再现包络线）。
2. 再现校正用磁带（VROCBFFS）。
3. 通过示波器、观察音频磁头开关脉冲的上升边缘以及下降边缘的时序波形。
4. 检查TP6303（信号）和TP6306（接地）的包络线是否如图2-31所示，满足较音频磁头开关脉冲两边缘大100 微秒之规定要求。如果要求不能达至满足，则需重新进行“磁头转换点的调整”（见“伺服电路的调整）以及走带状况之检测。

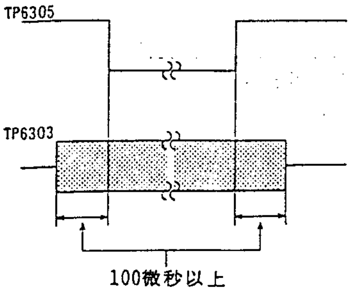


图2－31

线性音频再现电平的调试

检测仪器	交流毫伏特计
工作状态	再现
输入信号	校正用磁带（VROCPSV） （1kHz电平控制信号）
测试点	音频输出插座
规定要求	-12 ± 2dBs(于RCA插座)

1. 再生校正磁带(VROCPSV) 1 千赫电平控制信号。
2. 把交流毫伏特计接到音频输出插座上。
3. 使其输出电平达至-12 ± 2 dBs(于RCA)的规定要求。

线性音频偏流的调试

检测仪器	交流毫伏特计
工作状态	录象（PAL制）
输入信号	无特别要求
测试点	TP6301(+)～TP6302(−)
调整点	R6306 偏压电流
规定要求	2.2 ± 0.1mVrms

1. 把交流毫伏特计接到测试点TP6301(+)和TP6302(−)上。（用TP6302当作接地引线。）
2. 设录象机于录象状态。
3. 调节R6306，使偏压电流值调至2.2 ± 0.1mVrms 微安的规定要求。
4. 记录、再现电视播放内容，检查再现声音是否嘈杂。

线性音频偏漏的检查

检测仪器	交流毫伏电压计或示波器
工作状态	记录
输入信号	无必要
测试点	音频输出插座
调整点	——
规定要求	小于-20dBs或220mVp-p

1. 设录象机于记录状态，并用“AV”（音影）频道接收A/V(音频/视频)信号。注意避免向音频输入插座输入任何信号。
2. 接交流毫伏电压计或示波器于音频输出插座。
3. 检查偏漏是否符合低于-20dBs或220mVp-p的规定要求。

消磁电压和振荡器频率的检测

检测仪器	示波器
工作状态	录象
测试点	完全消磁磁头
调整点	T6301偏压振荡器变频器
规定要求	70±10千赫，40Vp-p或大于

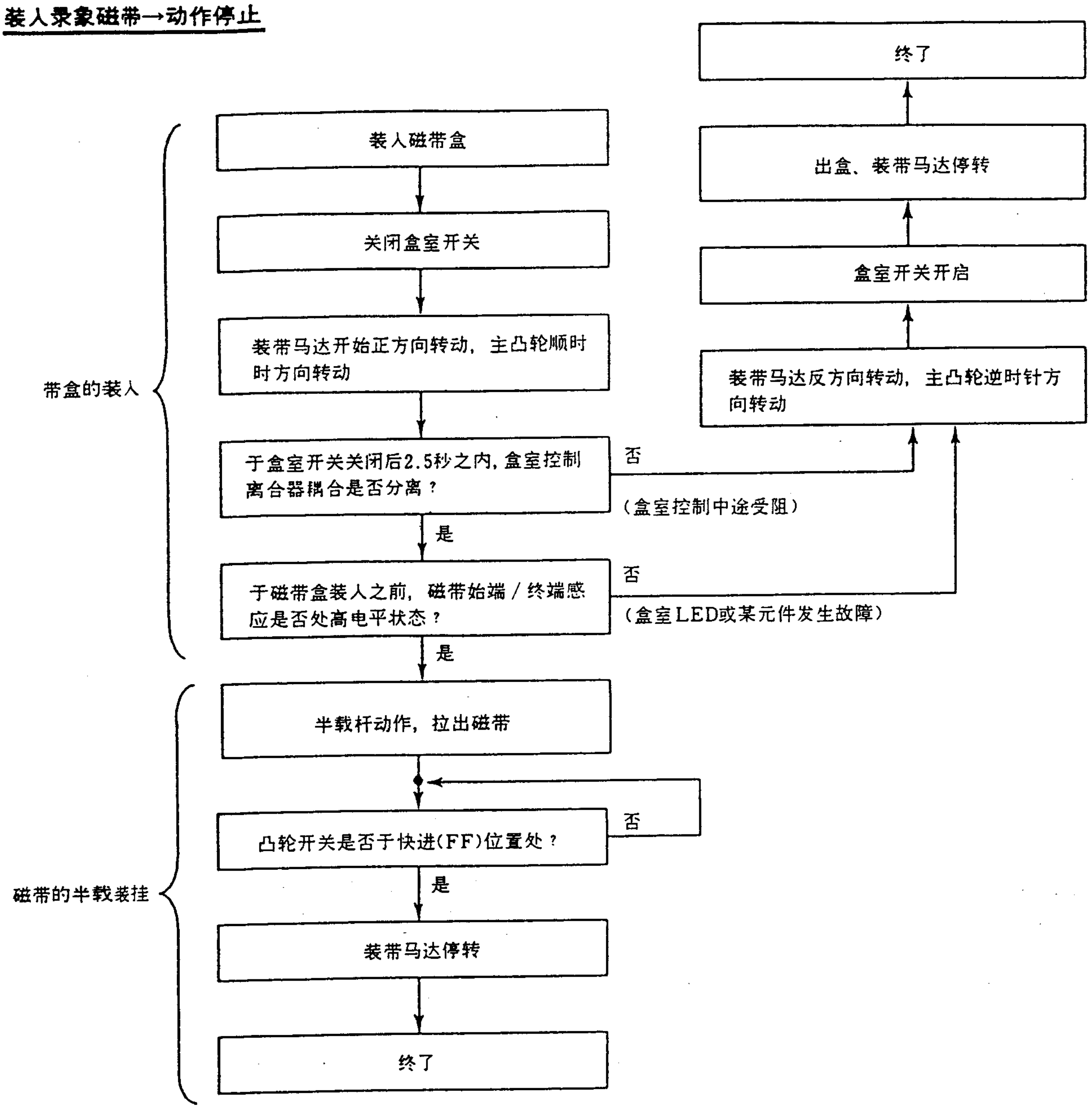
1. 设录象机处于录象状态。
2. 把完全消磁磁头跨接到示波器上。
“（白色：信号端，灰色：接地端）”为正确。
3. 确认跨接于完全消磁磁头的消磁电压近似或大于40Vp-p，以及频率为70±10千赫。

录象机机械动作流程图及机械故障检查

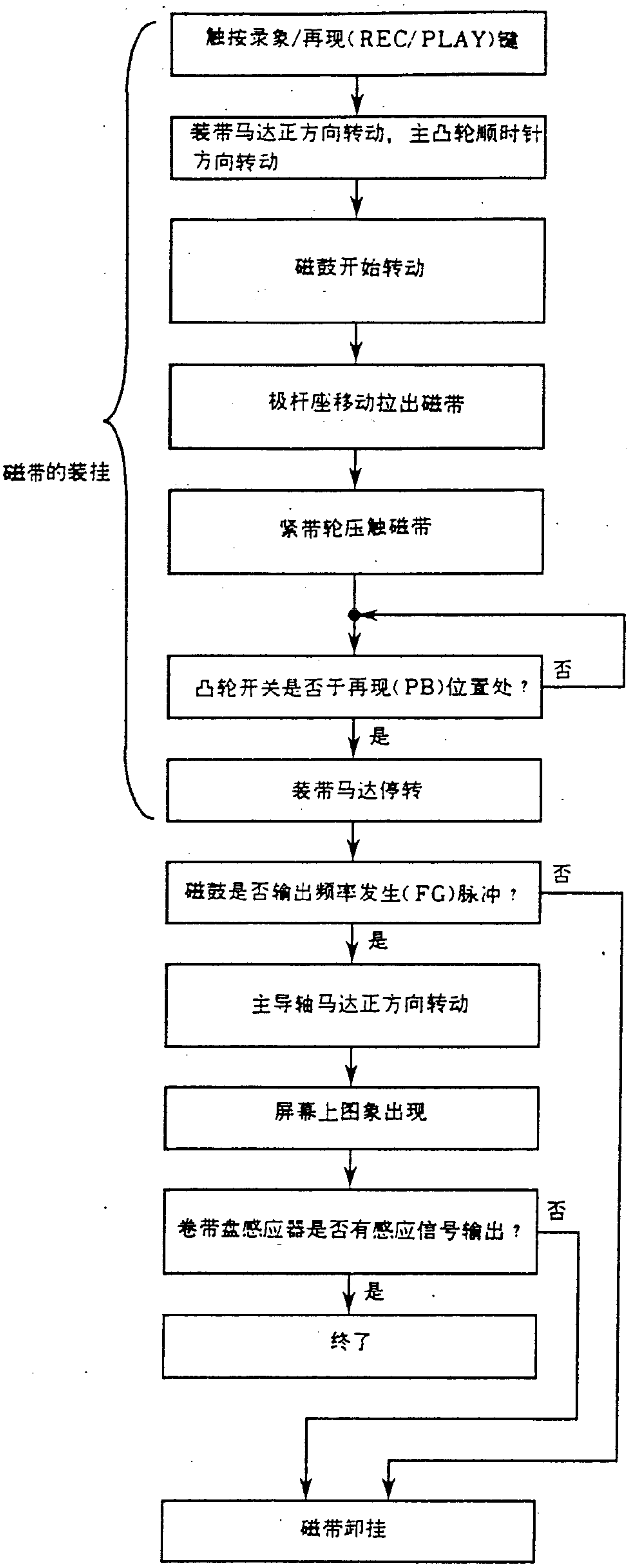
录象机机械动作流程图

＊该流程图意在说明录象机机械动作的大致概要，而不对其作详细具体的说明。
＊关于凸轮开关位置，请见图3－2所示。

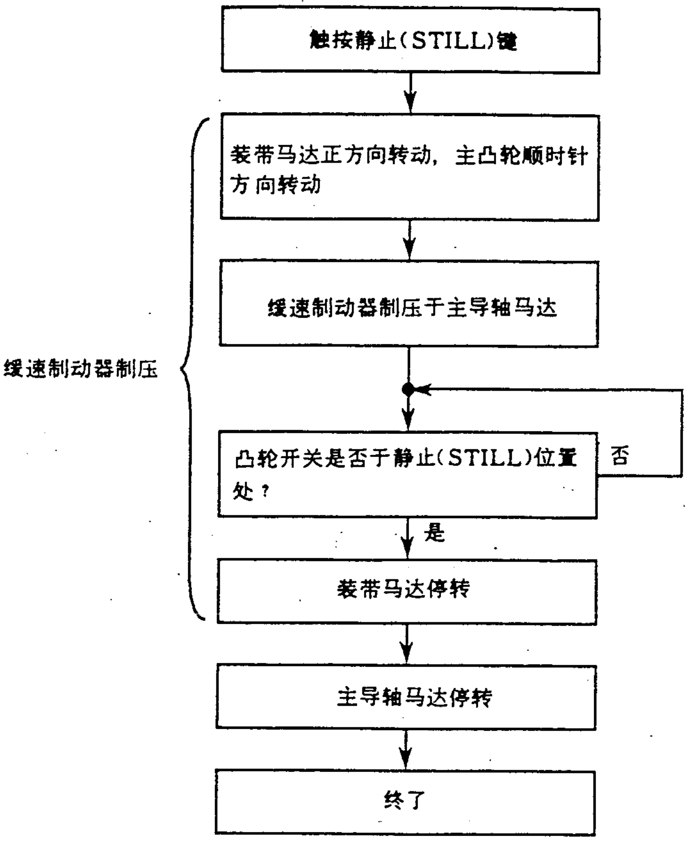
装入录象磁带→动作停止


终了
装入磁带盒
出盒、装带马达停转
关闭盒室开关
盒室开关开启
装带马达开始正方向转动，主凸轮顺时时方向转动
带盒的装入
装带马达反方向转动，主凸轮逆时针方向转动
于盒室开关关闭后2.5秒之内，盒室控制离合器耦合是否分离？
否
（盒室控制中途受阻）
是
于磁带盒装入之前，磁带始端／终端感应是否处高电平状态？
否
（盒室LED或某元件发生故障）
是
半载杆动作，拉出磁带
凸轮开关是否于快进(FF)位置处？
否
是
磁带的半载装挂
装带马达停转
终了

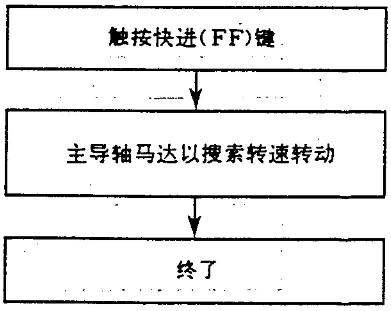
停止状态→录象/再现


触按录象/再现(REC/PLAY)键
装带马达正方向转动，主凸轮顺时针方向转动
磁鼓开始转动
极杆座移动拉出磁带
紧带轮压触磁带
凸轮开关是否于再现(PB)位置处？
否
是
装带马达停转
磁带的装挂
磁鼓是否输出频率发生(FG)脉冲？
否
是
主导轴马达正方向转动
屏幕上图象出现
卷带盘感应器是否有感应信号输出？
否
是
终了
磁带卸挂

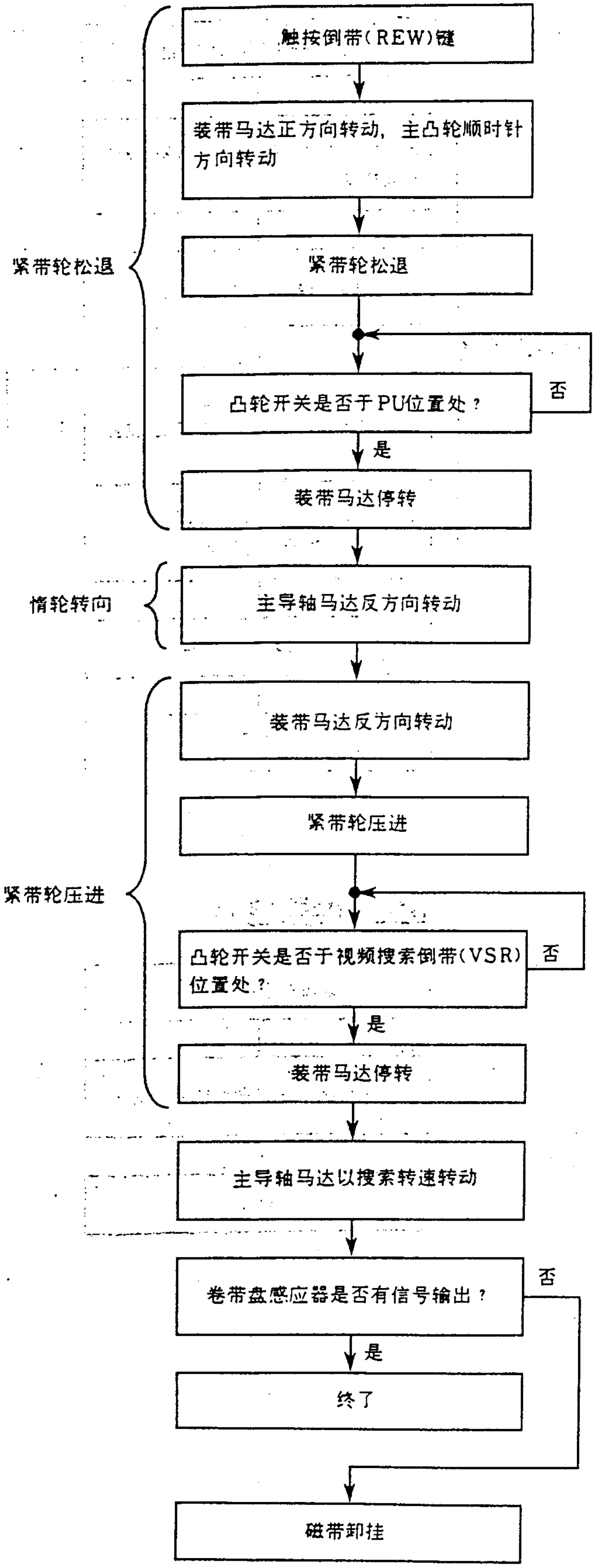
再现状态→静止


触按静止(STILL)键
装带马达正方向转动，主凸轮顺时针方向转动
缓速制动器制压于主导轴马达
缓速制动器制压
凸轮开关是否于静止(STILL)位置处？
否
是
装带马达停转
主导轴马达停转
终了

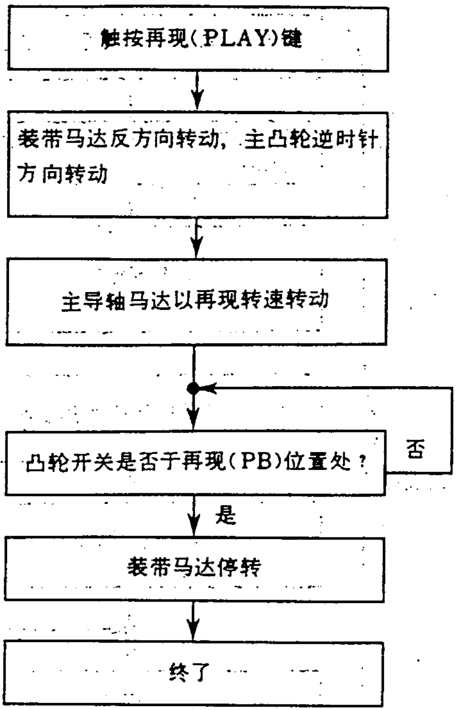
再现→视频搜索快进


触按快进(FF)键
主导轴马达以搜索转速转动
终了

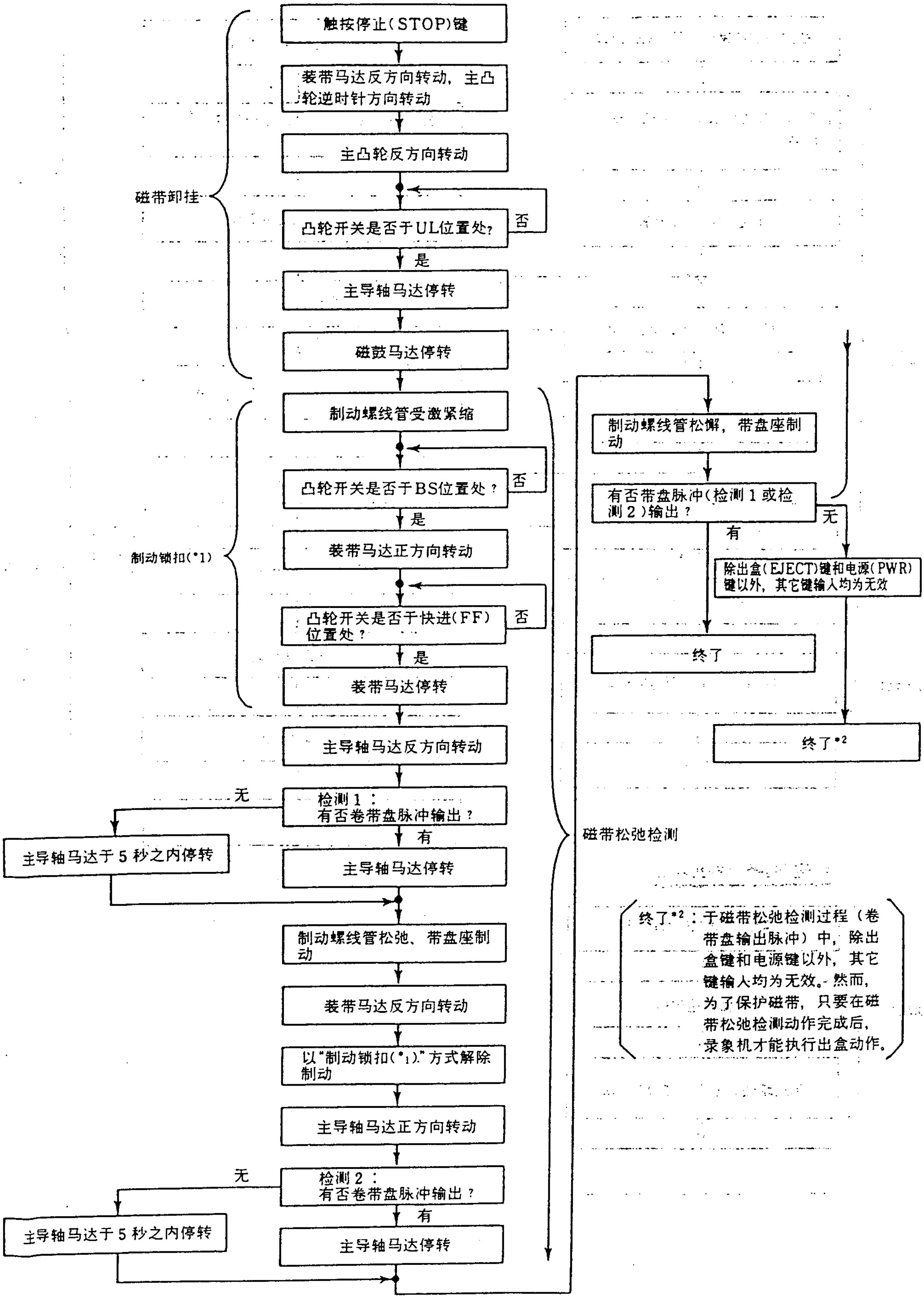
再现→视频搜索倒带


触按倒带(REW)键
装带马达正方向转动，主凸轮顺时针方向转动
紧带轮松退
紧带轮松退
凸轮开关是否于PU位置处？
否
是
装带马达停转
惰轮转向
主导轴马达反方向转动
装带马达反方向转动
紧带轮压进
紧带轮压进
凸轮开关是否于视频搜索倒带(VSR)位置处？
否
是
装带马达停转
主导轴马达以搜索转速转动
卷带盘感应器是否有信号输出？
否
是
终了
磁带卸挂

视频搜索倒带→再现

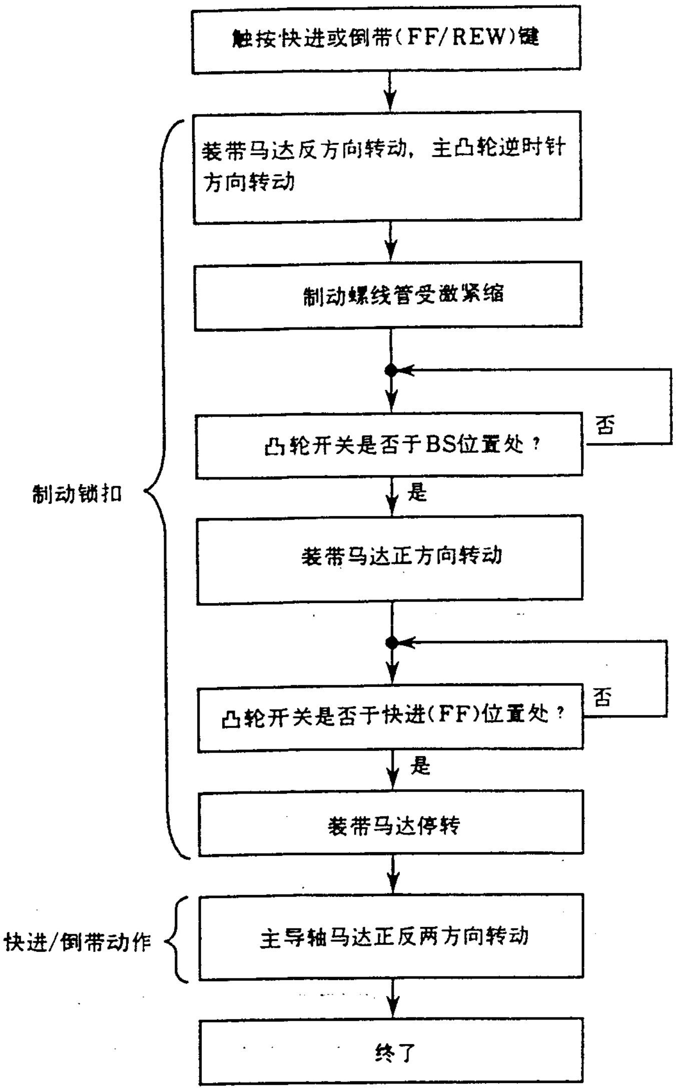

触按再现(PLAY)键
装带马达反方向转动，主凸轮逆时针方向转动
主导轴马达以再现转速转动
凸轮开关是否于再现(PB)位置处？
否
是
装带马达停转
终了

录象/再现→停止状态

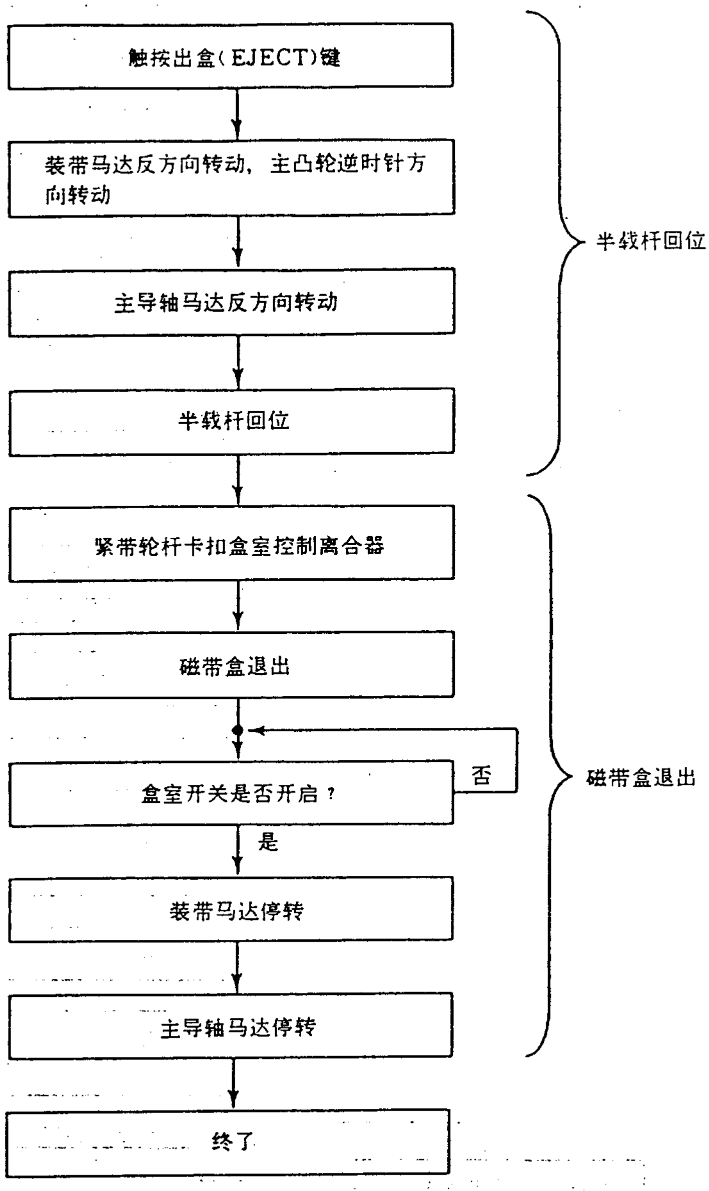

触按停止(STOP)键
装带马达反方向转动，主凸轮逆时针方向转动
主凸轮反方向转动
凸轮开关是否于UL位置处？
否
是
主导轴马达停转
磁鼓马达停转
磁带卸挂
制动螺线管受激紧缩
凸轮开关是否于BS位置处？
否
是
装带马达正方向转动
凸轮开关是否于快进(FF)位置处？
否
是
装带马达停转
制动锁扣(*1)
主导轴马达反方向转动
检测1：有否卷带盘脉冲输出？
无
有
主导轴马达于5秒之内停转
主导轴马达停转
制动螺线管松弛、带盘座制动
装带马达反方向转动
以“制动锁扣(*1)”方式解除制动
主导轴马达正方向转动
检测2：有否卷带盘脉冲输出？
无
有
主导轴马达于5秒之内停转
主导轴马达停转
磁带松弛检测
制动螺线管松懈，带盘座制动
有否带盘脉冲(检测1或检测2)输出？
无
有
除出盒(EJECT)键和电源(PWR)键以外，其它键输入均为无效
终了
终了*2

终了*2：于磁带松弛检测过程（卷带盘输出脉冲）中，除出盒键和电源键以外，其它键输入均为无效。然而，为了保护磁带，只要在磁带松弛检测动作完成后，录象机才能执行出盒动作。

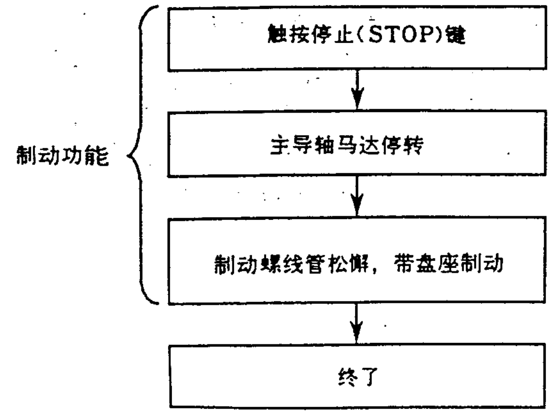
停止状态→快进/倒带


触按快进或倒带(FF/REW)键
装带马达反方向转动，主凸轮逆时针方向转动
制动螺线管受激紧缩
凸轮开关是否于BS位置处？
否
是
装带马达正方向转动
凸轮开关是否于快进(FF)位置处？
否
是
装带马达停转
主导轴马达正反两方向转动
终了
制动锁扣
快进/倒带动作

停止状态→出盒


触按出盒(EJECT)键
装带马达反方向转动，主凸轮逆时针方向转动
主导轴马达反方向转动
半载杆回位
紧带轮杆卡扣盒室控制离合器
磁带盒退出
盒室开关是否开启？
否
是
装带马达停转
主导轴马达停转
终了
半载杆回位
磁带盒退出

快进/倒带→停止状态


触按停止(STOP)键
主导轴马达停转
制动螺线管松懈，带盘座制动
终了
制动功能

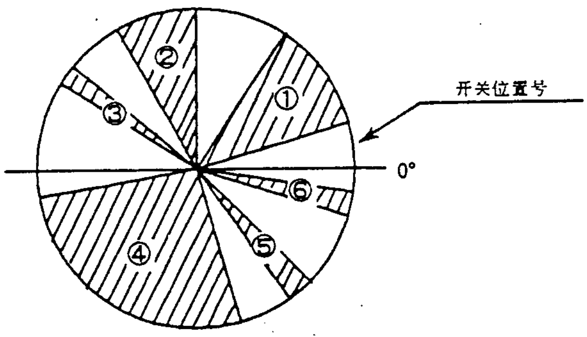


图3－1 凸轮开关图

＊凸轮开关位置图如图3－1所示。当信号进入图中阴影区域，其电路便开始运转。这时，系统控制器对凸轮开关的六个接续端的开闭进行判定检查，以决定录象机的工作状态。

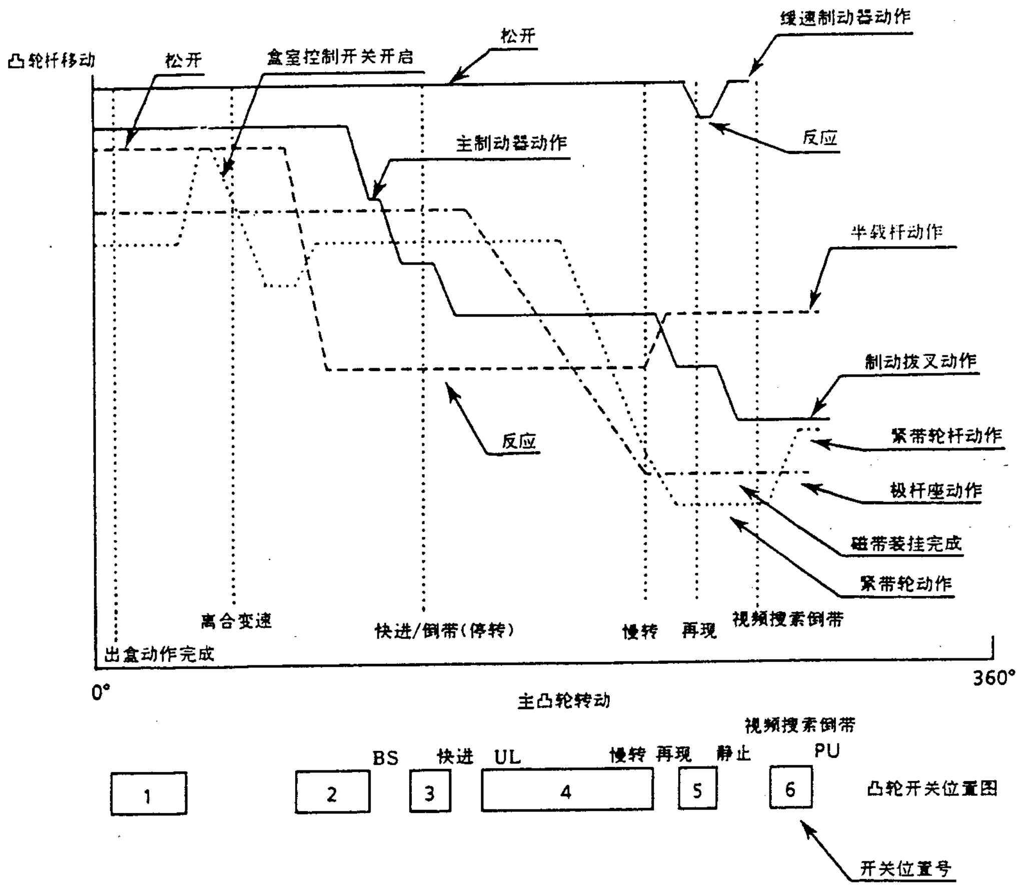
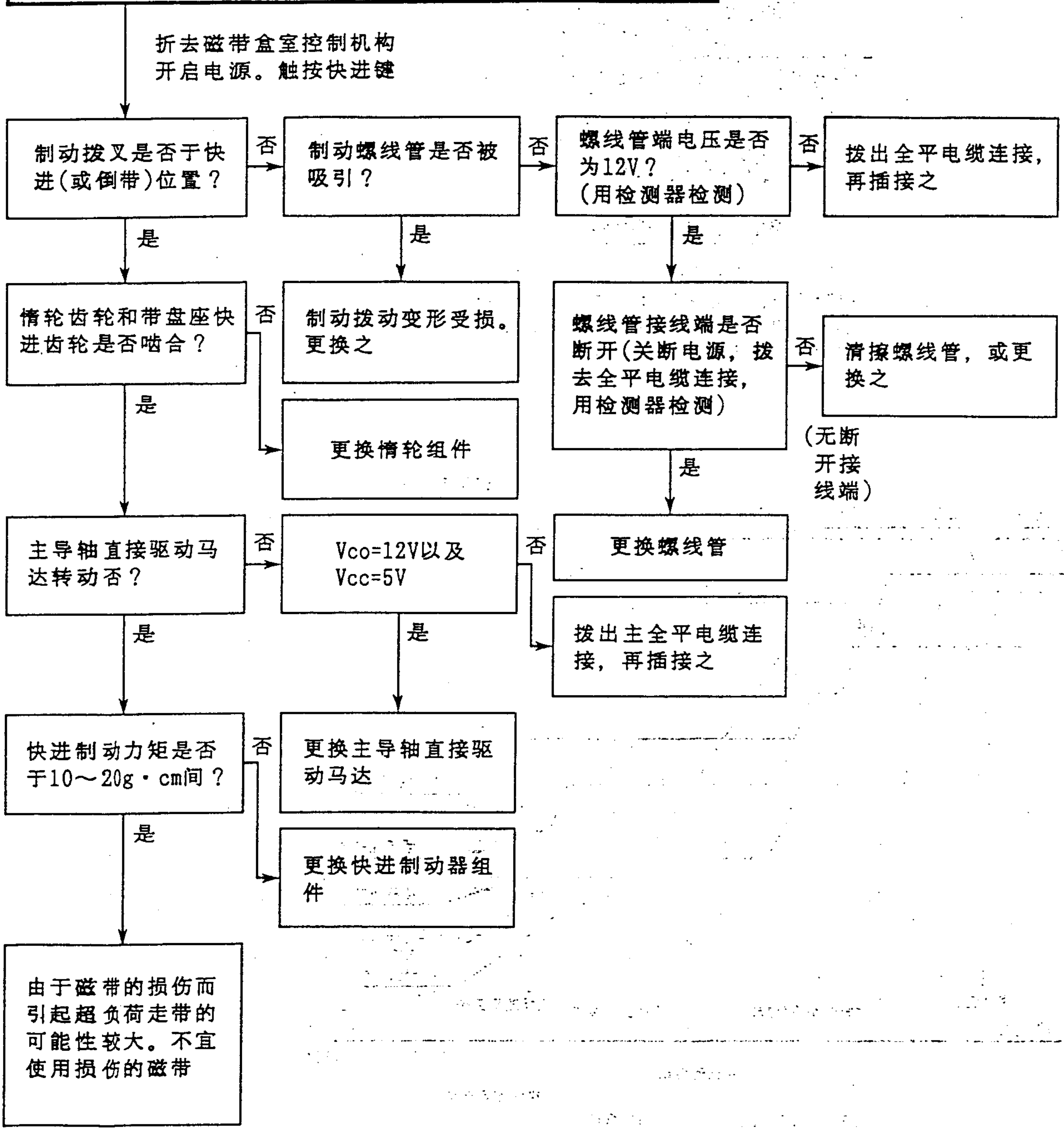


图3－2 凸轮开关位置与机械动作间的关系

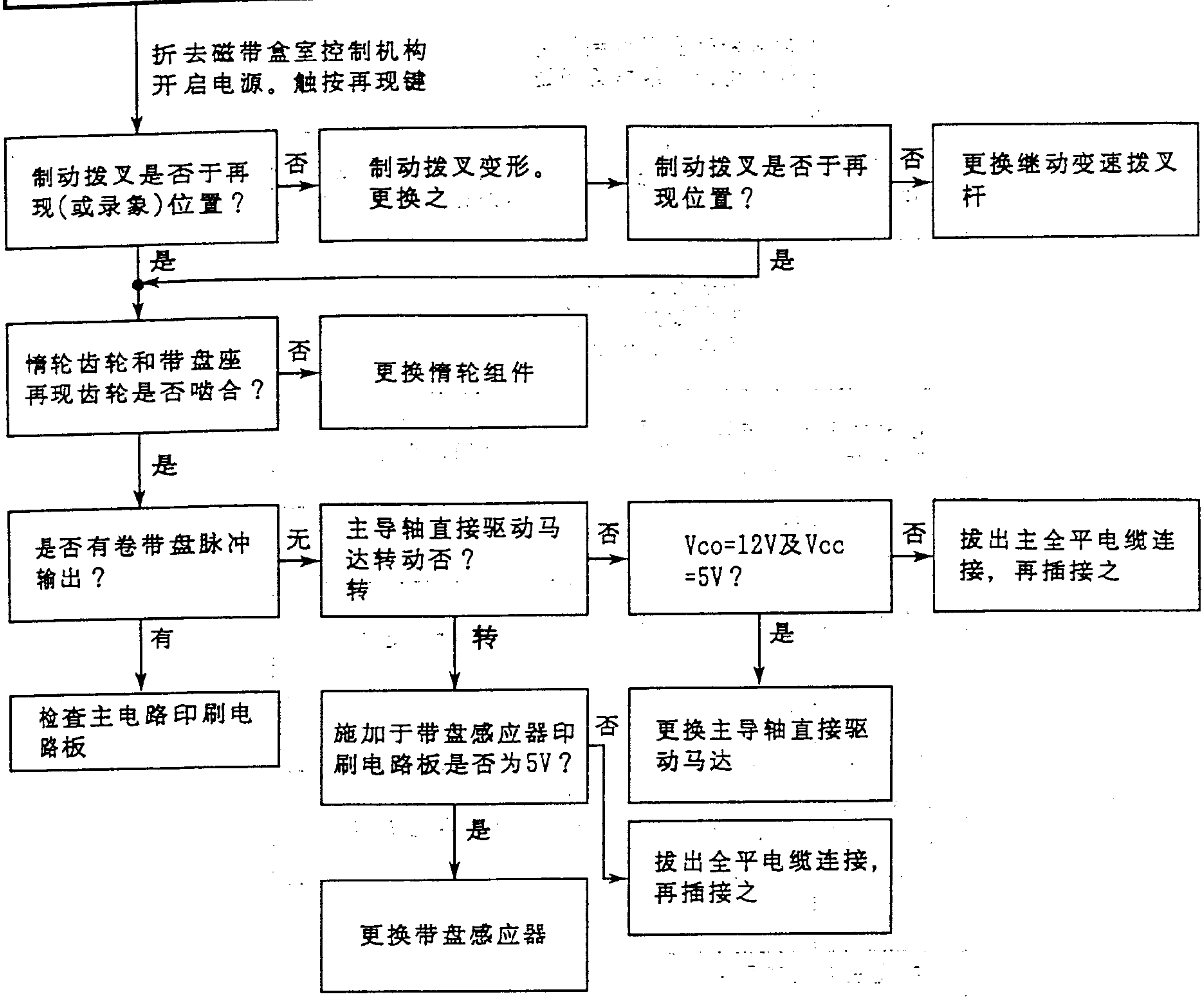
凸轮开关位置与录象机机械动作间的对应关系如图3－2所示。

机械故障检查

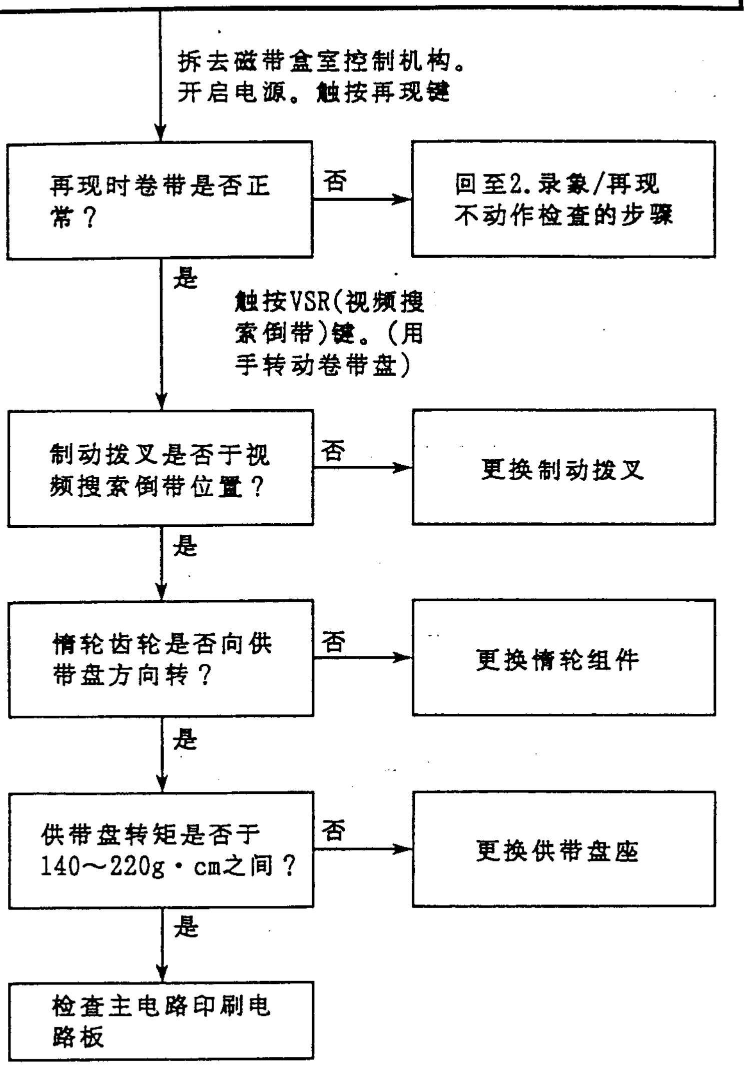
1.快进／倒带不动作（不卷带）


折去磁带盒室控制机构
开启电源。触按快进键
制动拨叉是否于快进(或倒带)位置？
否
制动螺线管是否被吸引？
否
螺线管端电压是否为12V？(用检测器检测)
否
拔出全平电缆连接，再插接之
是
是
是
惰轮齿轮和带盘座快进齿轮是否啮合？
否
制动拨动变形受损。更换之
更换惰轮组件
螺线管接线端是否断开(关断电源，拔去全平电缆连接，用检测器检测)
否
清擦螺线管，或更换之
(无断开接线端)
是
是
主导轴直接驱动马达转动否？
否
Vco=12V以及Vcc=5V
否
更换螺线管
拔出主全平电缆连接，再插接之
是
是
快进制动力矩是否于10～20g・cm间？
否
更换主导轴直接驱动马达
更换快进制动器组件
是
由于磁带的损伤而引起超负荷走带的可能性较大。不宜使用损伤的磁带

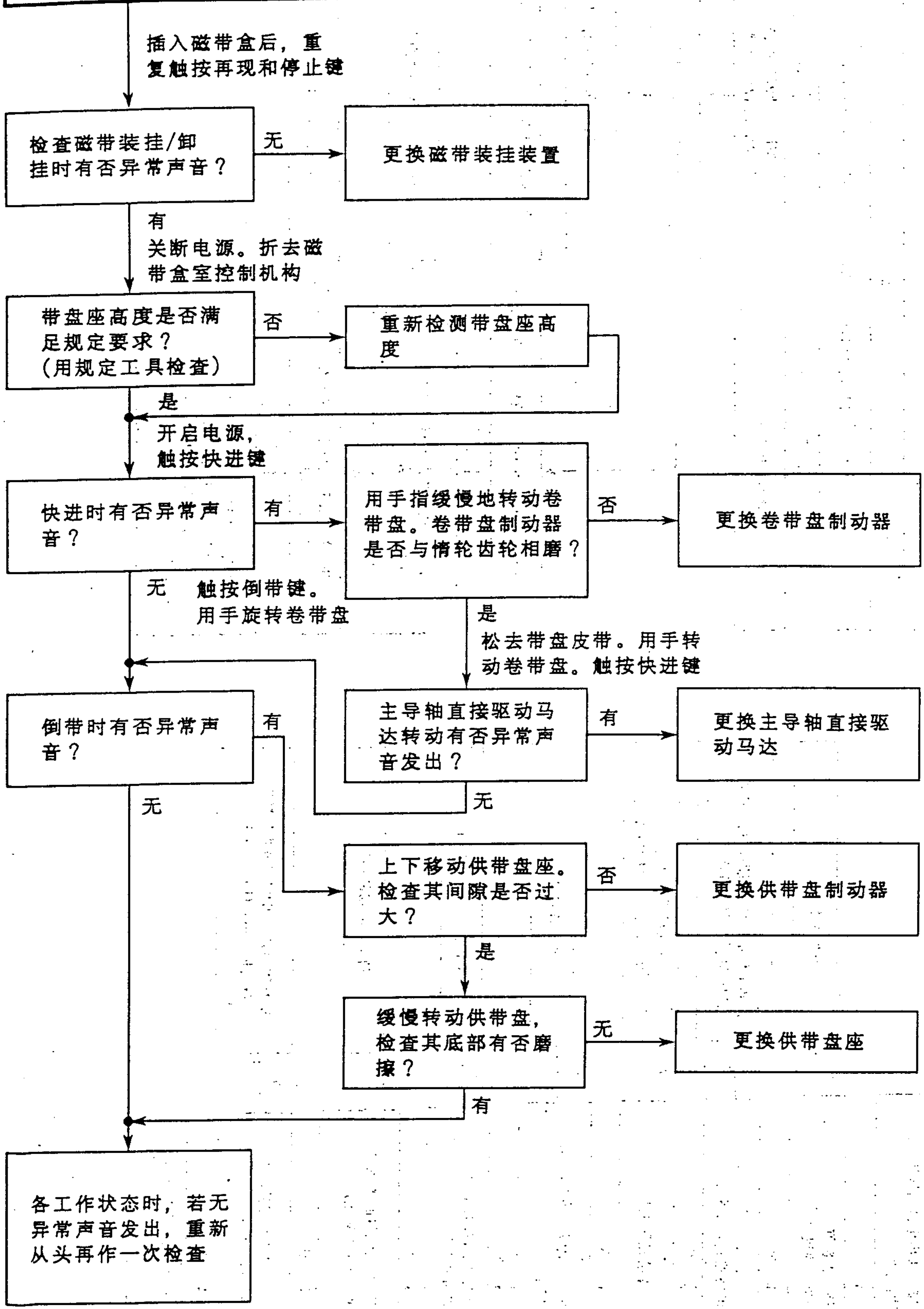
2.录象／再现不动作（状态解除）


折去磁带盒室控制机构
开启电源。触按再现键
制动拨叉是否于再现(或录象)位置？
否
制动拨叉变形。更换之
制动拨叉是否于再现位置？
否
更换继动变速拨叉杆
是
是
惰轮齿轮和带盘座再现齿轮是否啮合？
否
更换惰轮组件
是
是否有卷带盘脉冲输出？
无
主导轴直接驱动马达转动否？
转
否
Vco=12V及Vcc=5V？
否
拔出主全平电缆连接，再插接之
有
检查主电路印刷电路板
转
施加于带盘感应器印刷电路板是否为5V？
否
是
更换主导轴直接驱动马达
拔出全平电缆连接，再插接之
是
更换带盘感应器

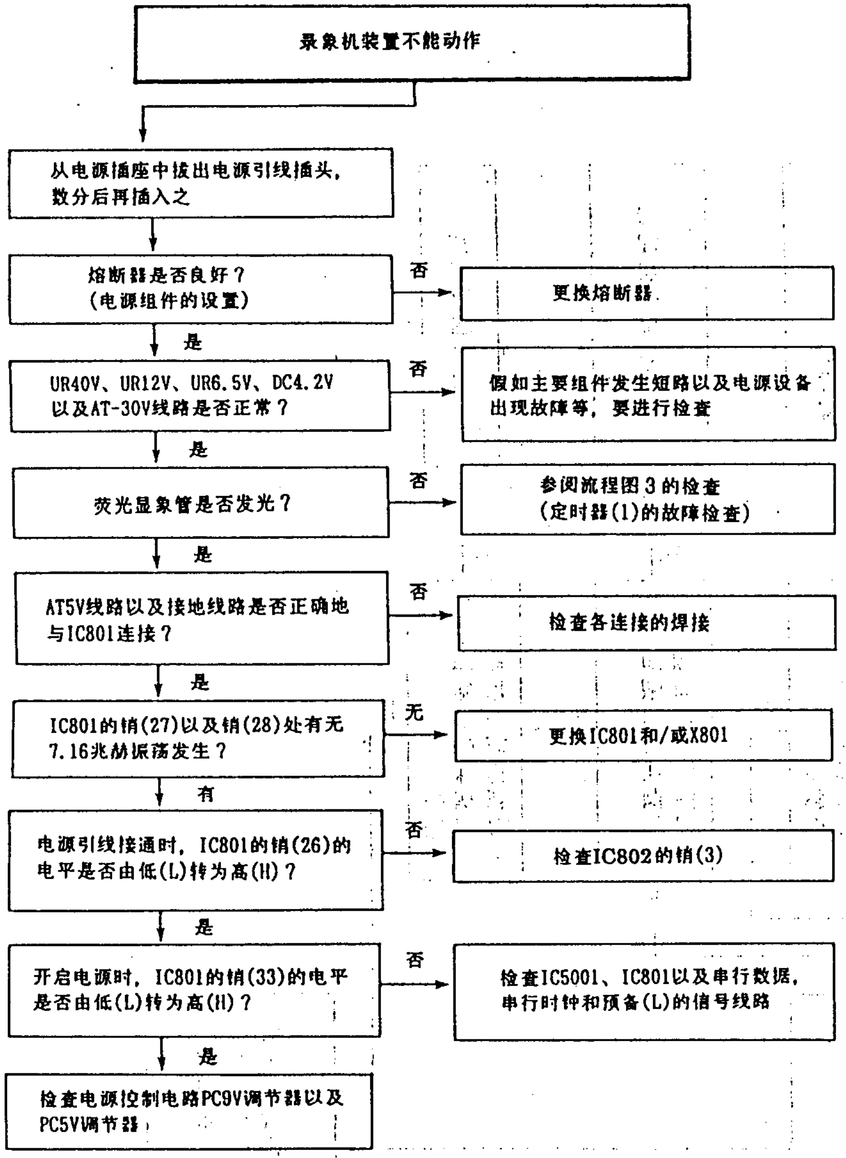
3.视频搜索倒带不动作（不卷带）


拆去磁带盒室控制机构。
开启电源。触按再现键
再现时卷带是否正常？
否
回至2.录象/再现不动作检查的步骤
是
触按VSR(视频搜索倒带)键。(用手转动卷带盘)
制动拔叉是否于视频搜索倒带位置？
否
更换制动拔叉
是
惰轮齿轮是否向供带盘方向转？
否
更换惰轮组件
是
供带盘转矩是否于140～220g・cm之间？
否
更换供带盘座
是
检查主电路印刷电路板

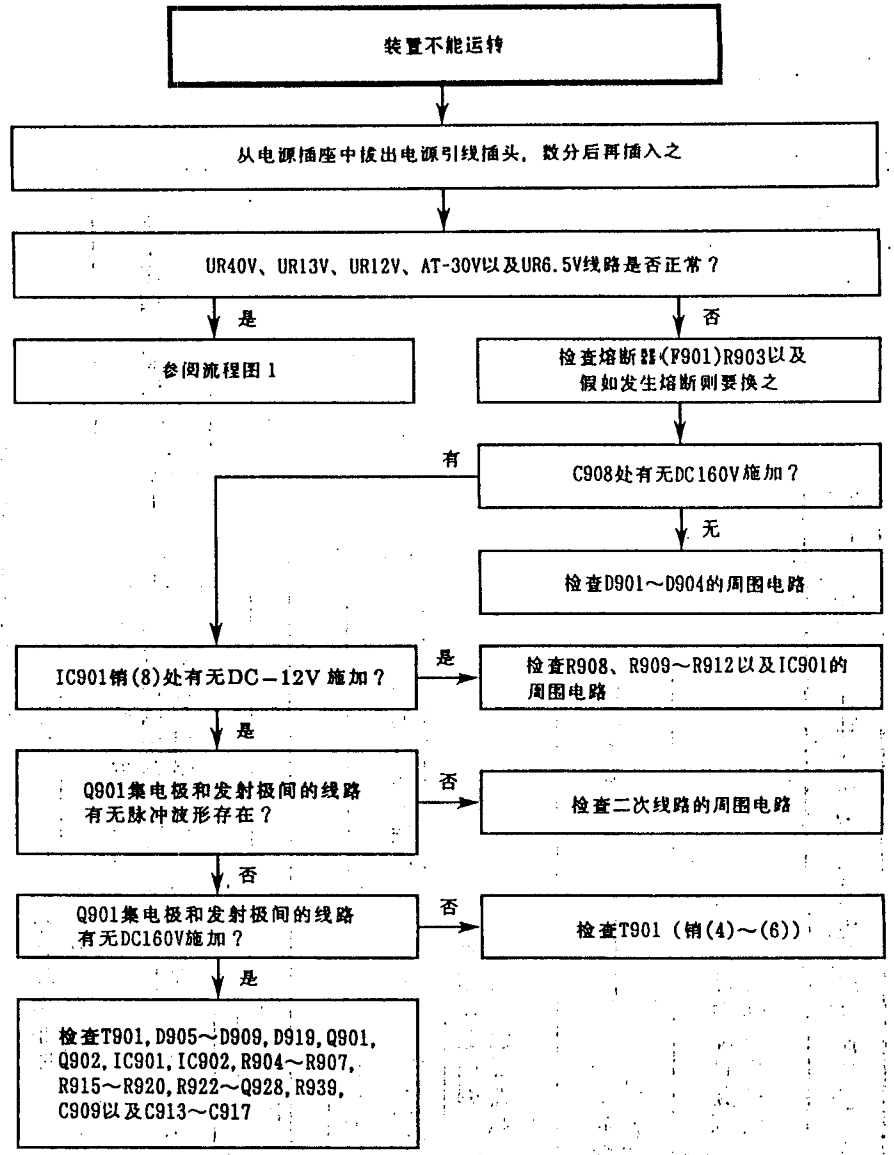
4.于各工作状态均发出异常声音


插入磁带盒后，重复触按再现和停止键
检查磁带装挂/卸挂时有否异常声音？
无
更换磁带装挂装置
有
关断电源。折去磁带盒室控制机构
带盘座高度是否满足规定要求？(用规定工具检查)
否
重新检测带盘座高度
是
开启电源，触按快进键
快进时有否异常声音？
有
用手指缓慢地转动卷带盘。卷带盘制动器是否与惰轮齿轮相磨？
否
更换卷带盘制动器
是
松去带盘皮带。用手转动卷带盘。触按快进键
无
触按倒带键。用手旋转卷带盘
倒带时有否异常声音？
有
主导轴直接驱动马达转动有否异常声音发出？
有
更换主导轴直接驱动马达
无
无
上下移动供带盘座。检查其间隙是否过大？
否
更换供带盘制动器
是
缓慢转动供带盘，检查其底部有否磨擦？
无
更换供带盘座
有
各工作状态时，若无异常声音发出，重新从头再作一次检查

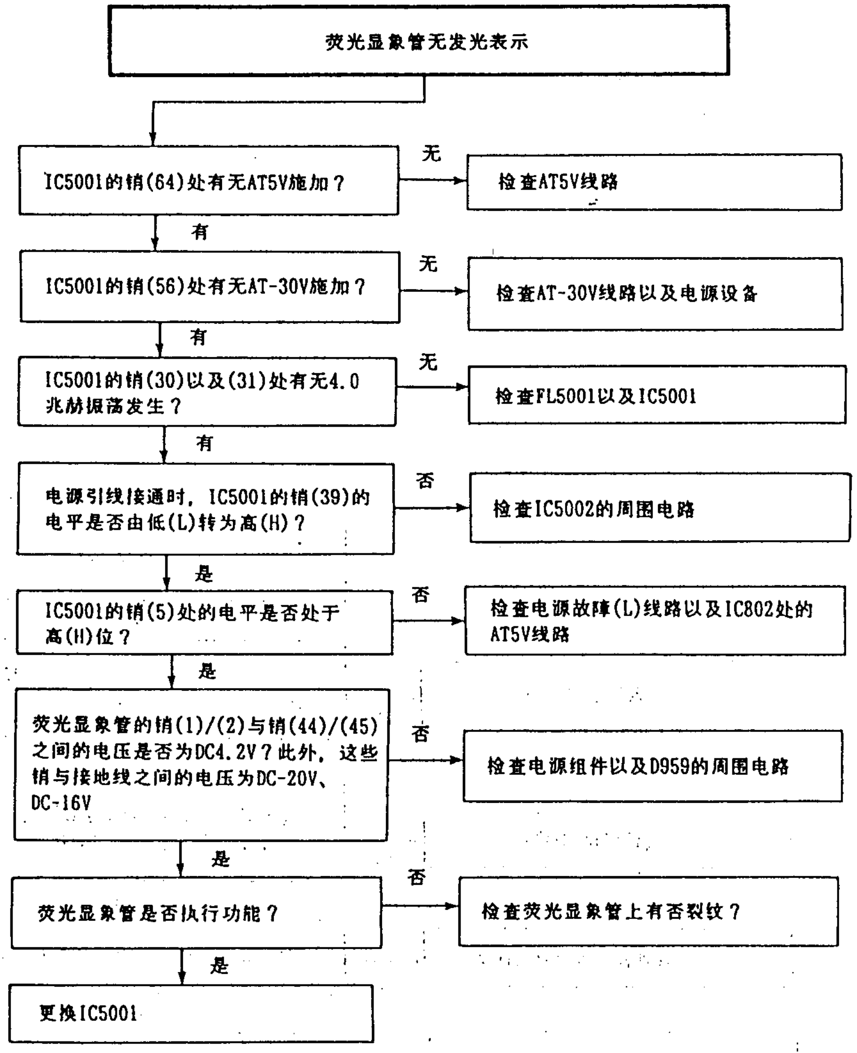
流程图 1　电源电路的故障检查


录象机装置不能动作
从电源插座中拔出电源引线插头，数分后再插入之
熔断器是否良好？（电源组件的设置）
否
更换熔断器
是
UR40V、UR12V、UR6.5V、DC4.2V以及AT-30V线路是否正常？
否
假如主要组件发生短路以及电源设备出现故障等，要进行检查
是
荧光显象管是否发光？
否
参阅流程图3的检查（定时器(1)的故障检查）
是
AT5V线路以及接地线路是否正确地与IC801连接？
否
检查各连接的焊接
是
IC801的销(27)以及销(28)处有无7.16兆赫振荡发生？
无
更换IC801和/或X801
有
电源引线接通时，IC801的销(26)的电平是否由低(L)转为高(H)？
否
检查IC802的销(3)
是
开启电源时，IC801的销(33)的电平是否由低(L)转为高(H)？
否
检查IC5001、IC801以及串行数据，串行时钟和预备(L)的信号线路
是
检查电源控制电路PC9V调节器以及PC5V调节器

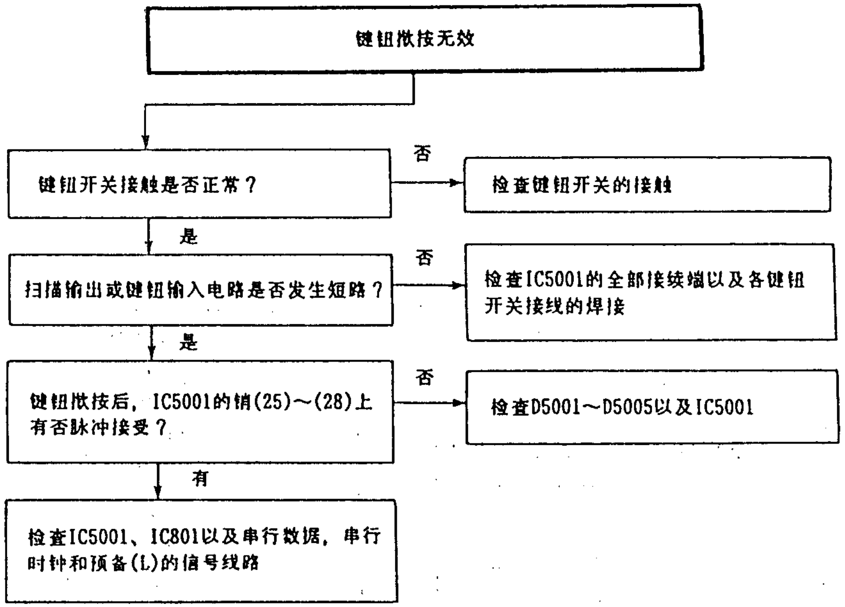
流程图 2　电源组件的故障检查


装置不能运转
从电源插座中拔出电源引线插头，数分后再插入之
UR40V、UR13V、UR12V、AT-30V以及UR6.5V线路是否正常？
是
参阅流程图1
否
检查熔断器(F901)R903以及假如发生熔断则要换之
C908处有无DC160V施加？
无
检查D901～D904的周围电路
有
IC901销(8)处有无DC－12V施加？
是
检查R908、R909～R912以及IC901的周围电路
是
Q901集电极和发射极间的线路有无脉冲波形存在？
否
检查二次线路的周围电路
否
Q901集电极和发射极间的线路有无DC160V施加？
否
检查T901（销(4)～(6)）
是
检查T901,D905～D909,D919,Q901,Q902,IC901,IC902,R904～R907,R915～R920,R922～Q928,R939,C909以及C913～C917

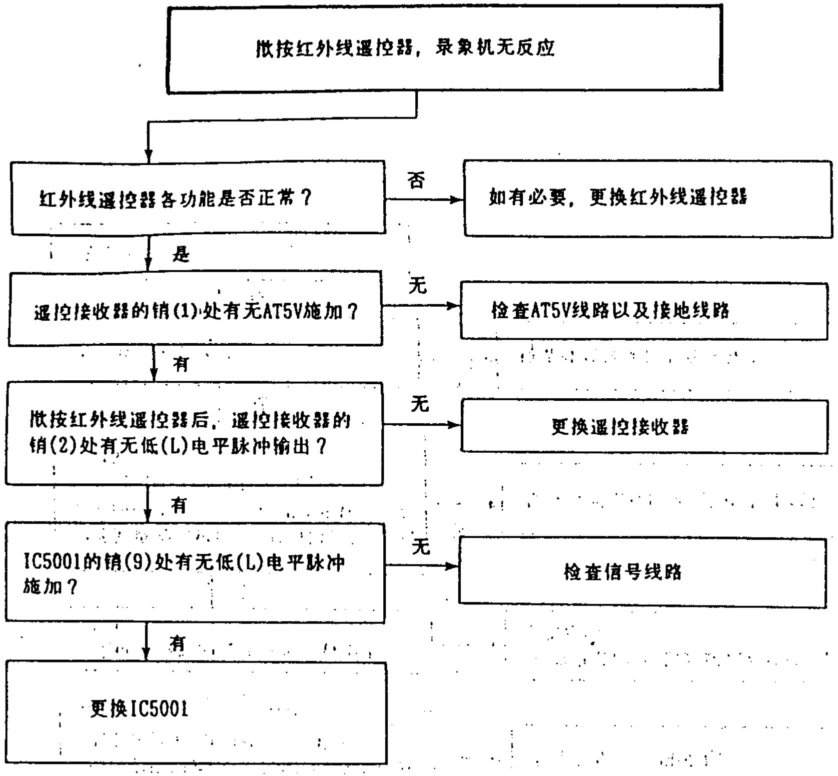
流程图 3　定时器（1）的故障检查


荧光显象管无发光表示
IC5001的销(64)处有无AT5V施加？
无
检查AT5V线路
有
IC5001的销(56)处有无AT-30V施加？
无
检查AT-30V线路以及电源设备
有
IC5001的销(30)以及(31)处有无4.0兆赫振荡发生？
无
检查FL5001以及IC5001
有
电源引线接通时，IC5001的销(39)的电平是否由低(L)转为高(H)？
否
检查IC5002的周围电路
是
IC5001的销(5)处的电平是否处于高(H)位？
否
检查电源故障(L)线路以及IC802处的AT5V线路
是
荧光显象管的销(1)/(2)与销(44)/(45)之间的电压是否为DC4.2V？此外，这些销与接地线之间的电压为DC-20V、DC-16V
否
检查电源组件以及D959的周围电路
是
荧光显象管是否执行功能？
否
检查荧光显象管上有否裂纹？
是
更换IC5001

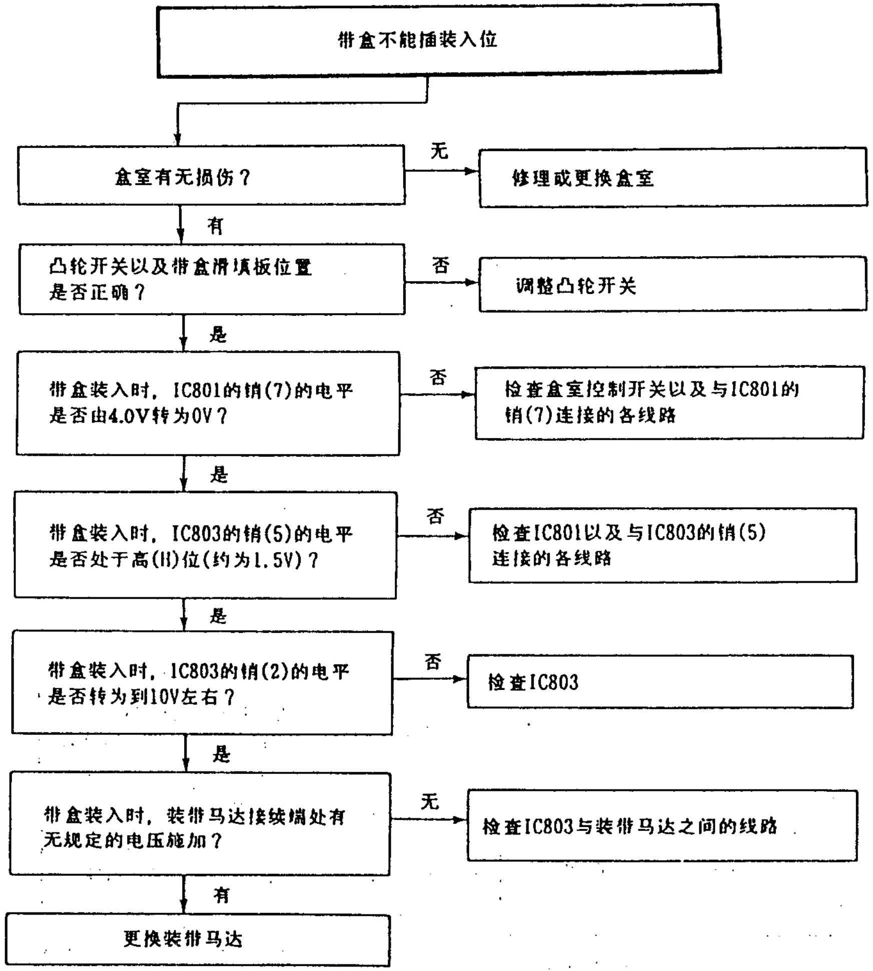
流程图 4　定时器（2）的故障检查


键钮揿按无效
键钮开关接触是否正常？
否
检查键钮开关的接触
是
扫描输出或键钮输入电路是否发生短路？
否
检查IC5001的全部接续端以及各键钮开关接线的焊接
是
键钮揿按后，IC5001的销(25)～(28)上有否脉冲接受？
否
检查D5001～D5005以及IC5001
有
检查IC5001、IC801以及串行数据，串行时钟和预备(L)的信号线路

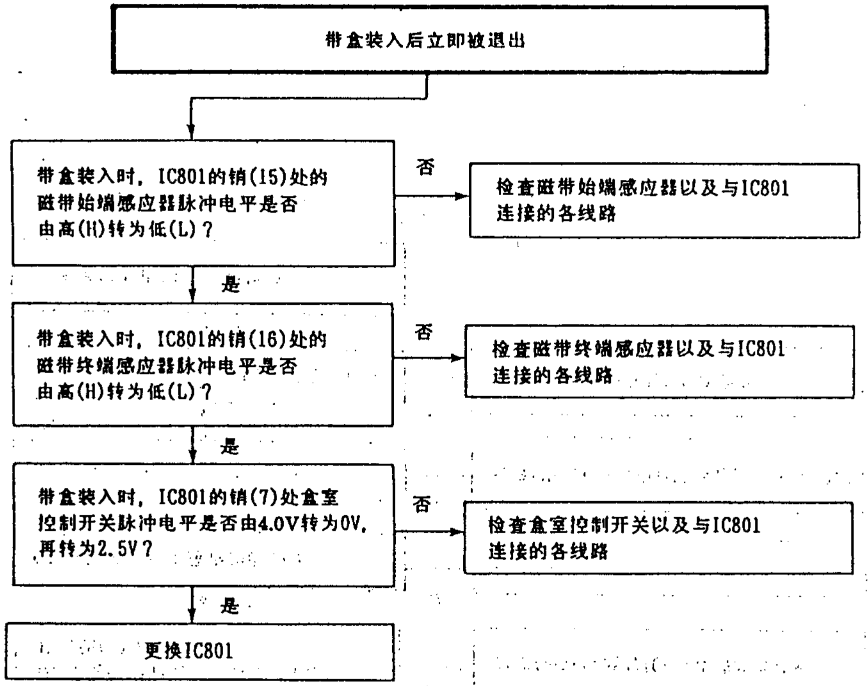
流程图 5　红外线遥控器的故障检查


揿按红外线遥控器，录象机无反应
红外线遥控器各功能是否正常？
否
如有必要，更换红外线遥控器
是
遥控接收器的销(1)处有无AT5V施加？
无
检查AT5V线路以及接地线路
有
揿按红外线遥控器后，遥控接收器的销(2)处有无低(L)电平脉冲输出？
无
更换遥控接收器
有
IC5001的销(9)处有无低(L)电平脉冲施加？
无
检查信号线路
有
更换IC5001

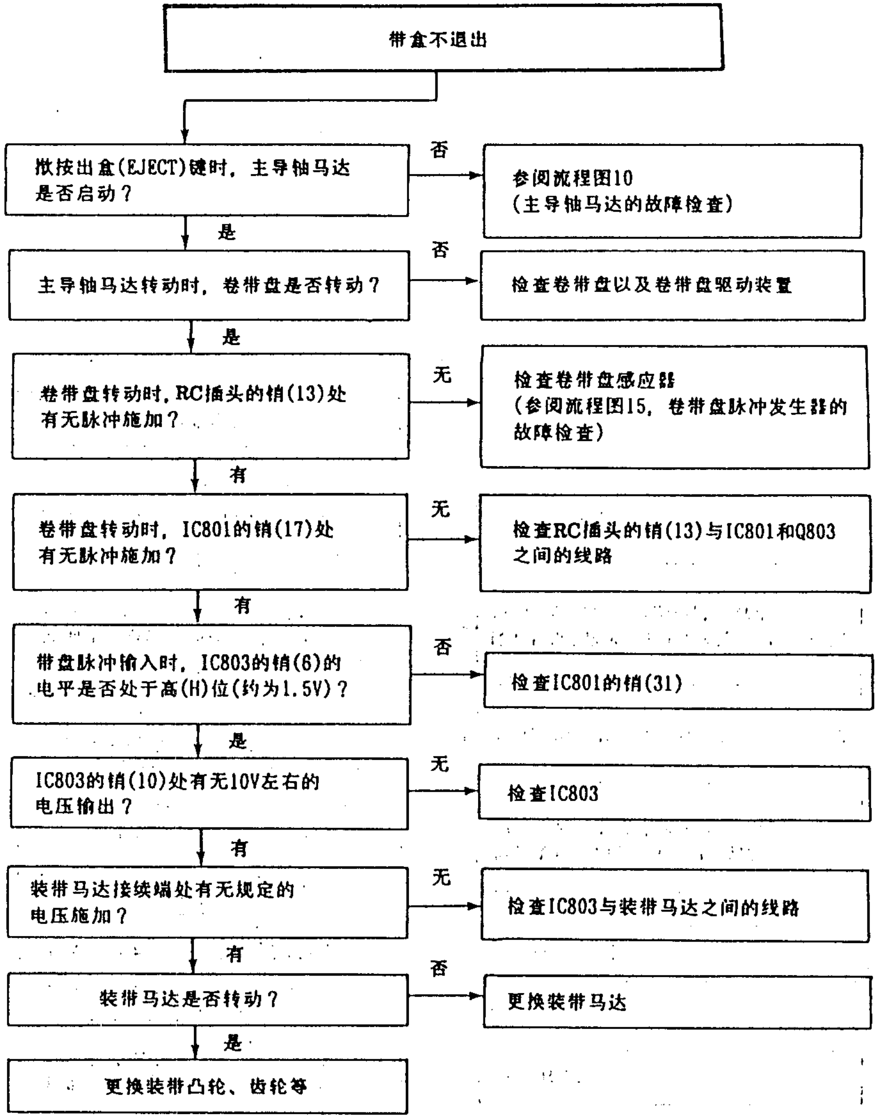
流程图 6　磁带盒室控制机构的故障检查（1）


带盒不能插装入位
盒室有无损伤？
无
修理或更换盒室
有
凸轮开关以及带盒滑填板位置是否正确？
否
调整凸轮开关
是
带盒装入时，IC801的销(7)的电平是否由4.0V转为0V？
否
检查盒室控制开关以及与IC801的销(7)连接的各线路
是
带盒装入时，IC803的销(5)的电平是否处于高(H)位(约为1.5V)？
否
检查IC801以及与IC803的销(5)连接的各线路
是
带盒装入时，IC803的销(2)的电平是否转为到10V左右？
否
检查IC803
是
带盒装入时，装带马达接续端处有无规定的电压施加？
无
检查IC803与装带马达之间的线路
有
更换装带马达

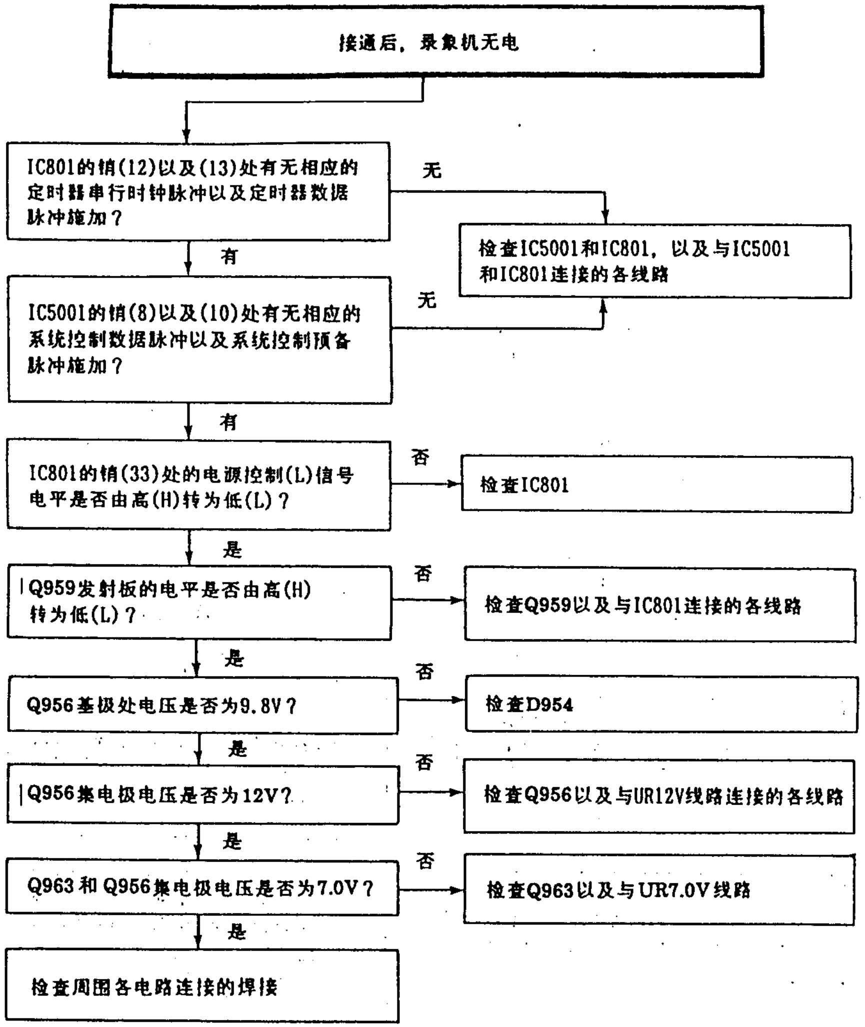
流程图 7　磁带盒室控制机构的故障检查（2）


带盒装入后立即被退出
带盒装入时，IC801的销(15)处的磁带始端感应器脉冲电平是否由高(H)转为低(L)？
否
检查磁带始端感应器以及与IC801连接的各线路
是
带盒装入时，IC801的销(16)处的磁带终端感应器脉冲电平是否由高(H)转为低(L)？
否
检查磁带终端感应器以及与IC801连接的各线路
是
带盒装入时，IC801的销(7)处盒室控制开关脉冲电平是否由4.0V转为0V，再转为2.5V？
否
检查盒室控制开关以及与IC801连接的各线路
是
更换IC801

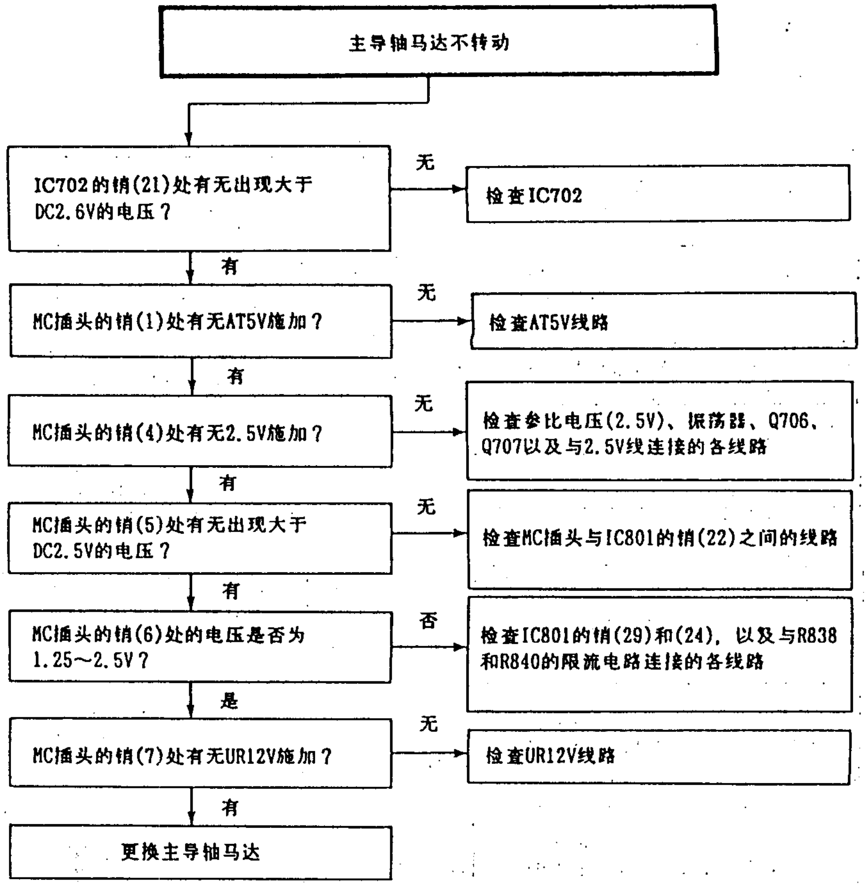
流程图 8　装带马达以及出盒动作的故障检查


带盒不退出
揿按出盒(EJECT)键时，主导轴马达是否启动？
否
参阅流程图10
(主导轴马达的故障检查)
是
主导轴马达转动时，卷带盘是否转动？
否
检查卷带盘以及卷带盘驱动装置
是
卷带盘转动时，RC插头的销(13)处有无脉冲施加？
无
检查卷带盘感应器
(参阅流程图15，卷带盘脉冲发生器的故障检查)
有
卷带盘转动时，IC801的销(17)处有无脉冲施加？
无
检查RC插头的销(13)与IC801和Q803之间的线路
有
带盘脉冲输入时，IC803的销(6)的电平是否处于高(H)位(约为1.5V)？
否
检查IC801的销(31)
是
IC803的销(10)处有无10V左右的电压输出？
无
检查IC803
有
装带马达接续端处有无规定的电压施加？
无
检查IC803与装带马达之间的线路
有
装带马达是否转动？
否
更换装带马达
是
更换装带凸轮、齿轮等

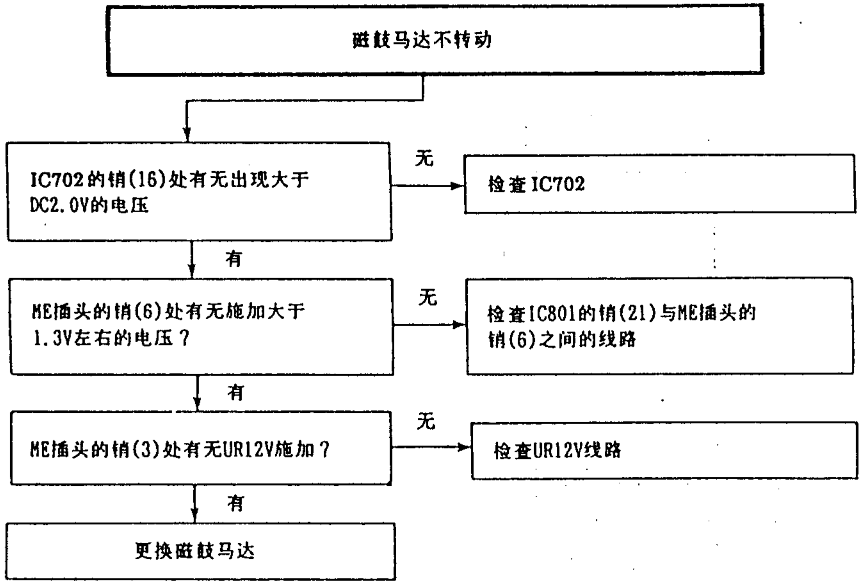
流程图 9　系统控制电路的故障检查


接通后，录象机无电
IC801的销(12)以及(13)处有无相应的定时器串行时钟脉冲以及定时器数据脉冲施加？
无
检查IC5001和IC801，以及与IC5001和IC801连接的各线路
有
IC5001的销(8)以及(10)处有无相应的系统控制数据脉冲以及系统控制预备脉冲施加？
无
有
IC801的销(33)处的电源控制(L)信号电平是否由高(H)转为低(L)？
否
检查IC801
是
Q959发射板的电平是否由高(H)转为低(L)？
否
检查Q959以及与IC801连接的各线路
是
Q956基极处电压是否为9.8V？
否
检查D954
是
Q956集电极电压是否为12V？
否
检查Q956以及与UR12V线路连接的各线路
是
Q963和Q956集电极电压是否为7.0V？
否
检查Q963以及与UR7.0V线路
是
检查周围各电路连接的焊接

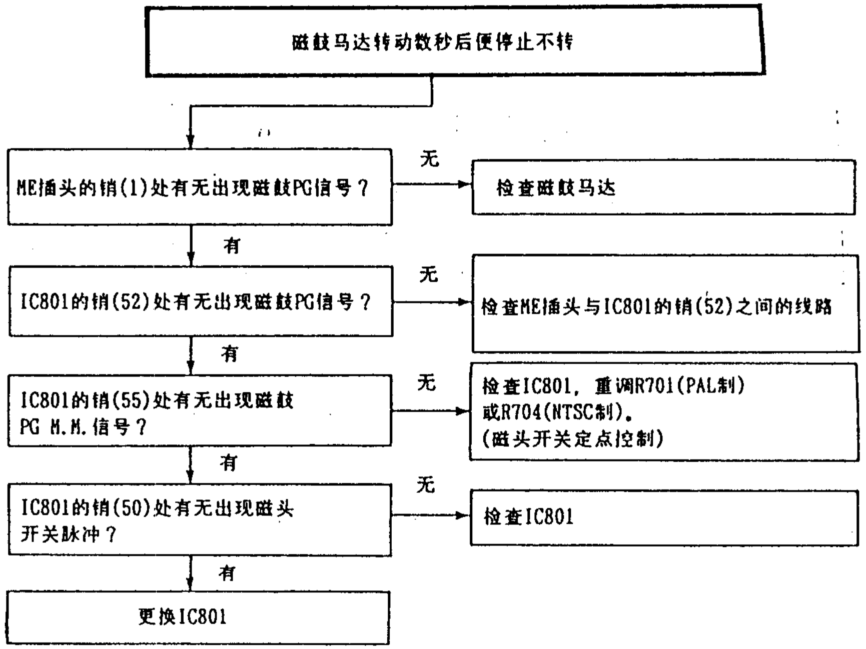
流程图10　主导轴马达的故障检查


主导轴马达不转动
IC702的销(21)处有无出现大于DC2.6V的电压？
无
检查IC702
有
MC插头的销(1)处有无AT5V施加？
无
检查AT5V线路
有
MC插头的销(4)处有无2.5V施加？
无
检查参比电压(2.5V)、振荡器、Q706、Q707以及与2.5V线连接的各线路
有
MC插头的销(5)处有无出现大于DC2.5V的电压？
无
检查MC插头与IC801的销(22)之间的线路
有
MC插头的销(6)处的电压是否为1.25～2.5V？
否
检查IC801的销(29)和(24)，以及与R838和R840的限流电路连接的各线路
是
MC插头的销(7)处有无UR12V施加？
无
检查UR12V线路
有
更换主导轴马达

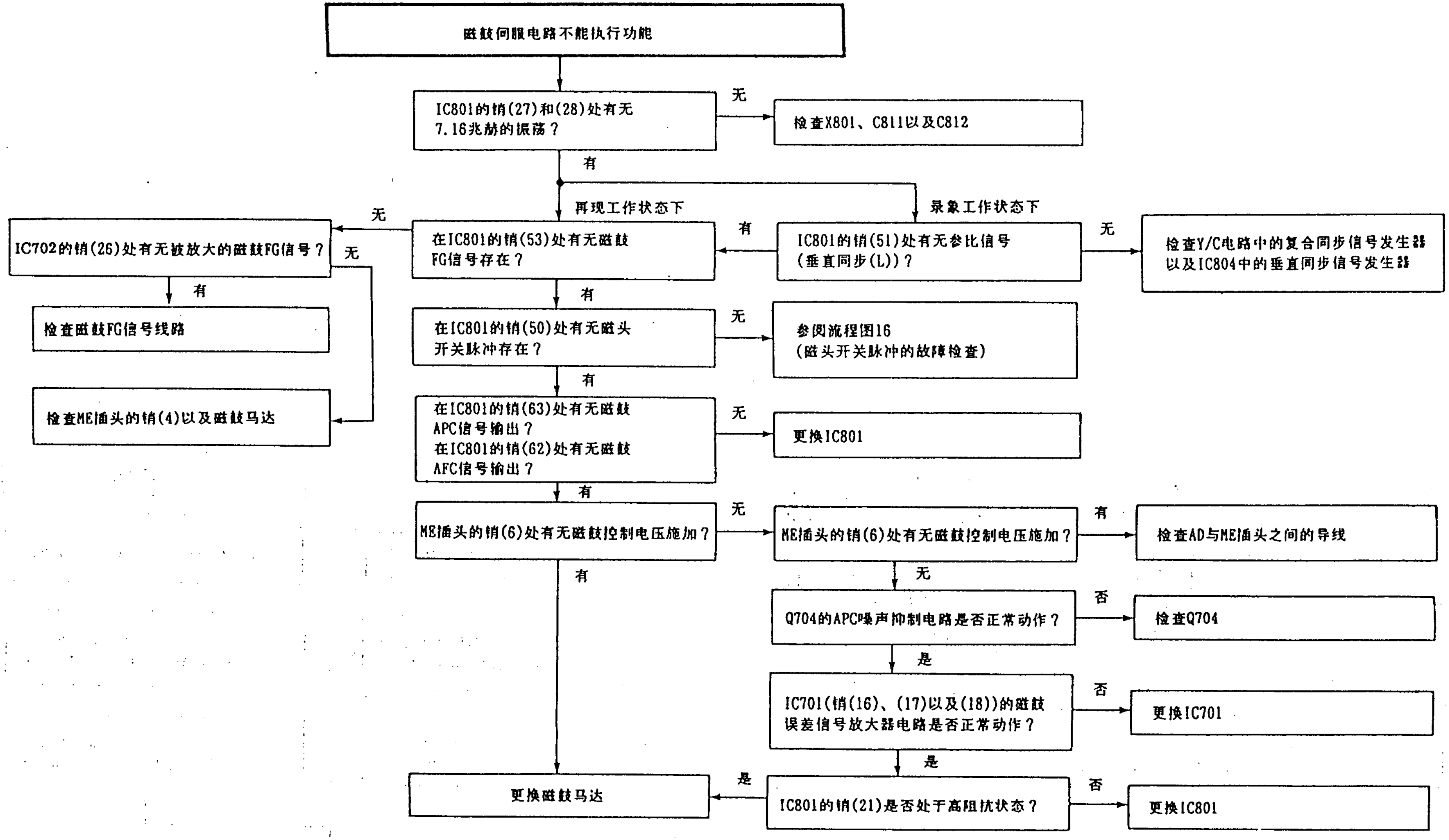
流程图11　磁鼓马达的故障检查(1)


磁鼓马达不转动
IC702的销(16)处有无出现大于DC2.0V的电压
无
检查IC702
有
ME插头的销(6)处有无施加大于1.3V左右的电压？
无
检查IC801的销(21)与ME插头的销(6)之间的线路
有
ME插头的销(3)处有无UR12V施加？
无
检查UR12V线路
有
更换磁鼓马达

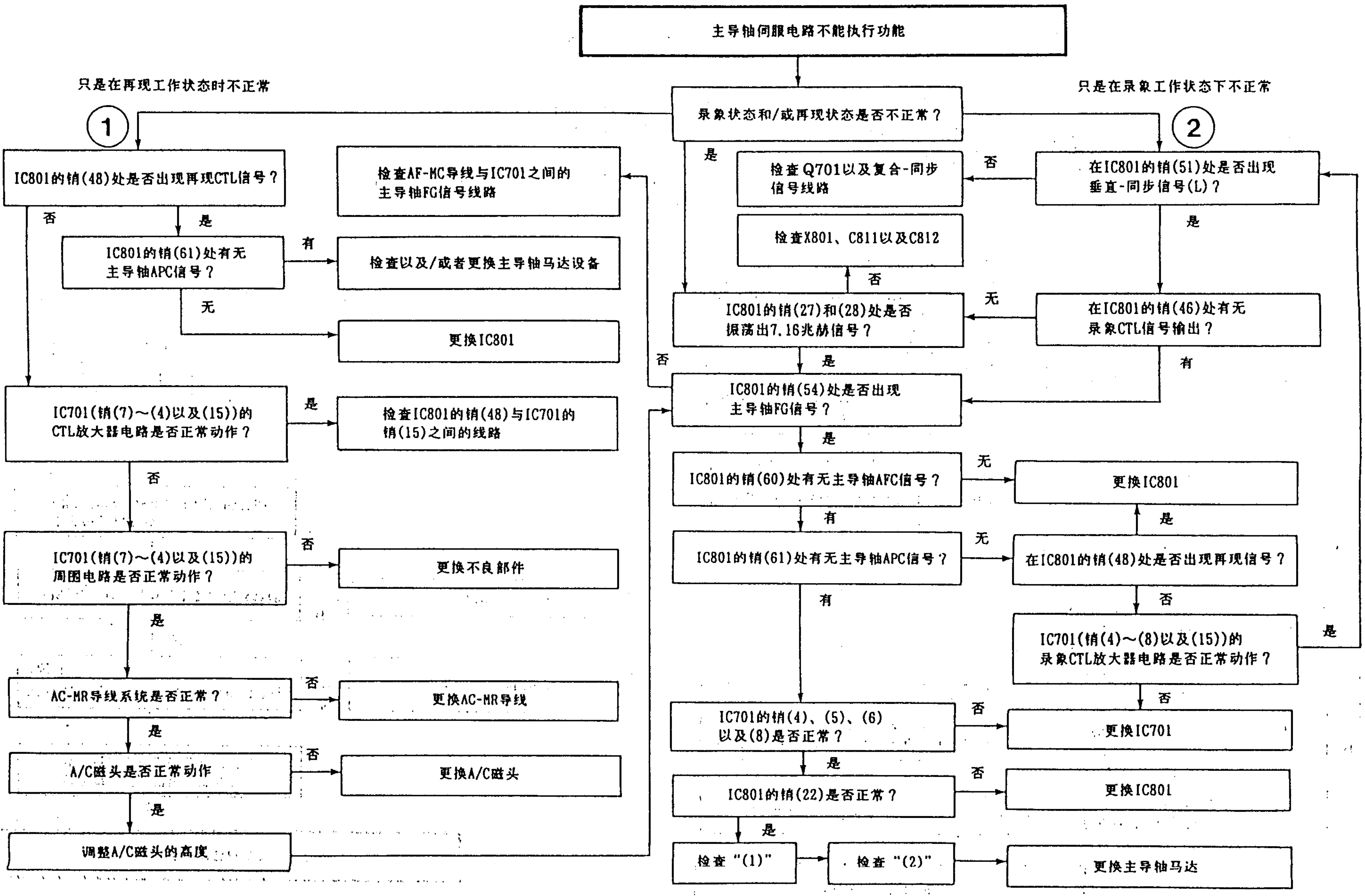
流程图12　磁鼓马达的故障检查(2)


磁鼓马达转动数秒后便停止不转
ME插头的销(1)处有无出现磁鼓PG信号？
无
检查磁鼓马达
有
IC801的销(52)处有无出现磁鼓PG信号？
无
检查ME插头与IC801的销(52)之间的线路
有
IC801的销(55)处有无出现磁鼓PG M.M.信号？
无
检查IC801，重调R701(PAL制)或R704(NTSC制)。(磁头开关定点控制)
有
IC801的销(50)处有无出现磁头开关脉冲？
无
检查IC801
有
更换IC801

流程图13　磁鼓伺服电路的故障检查

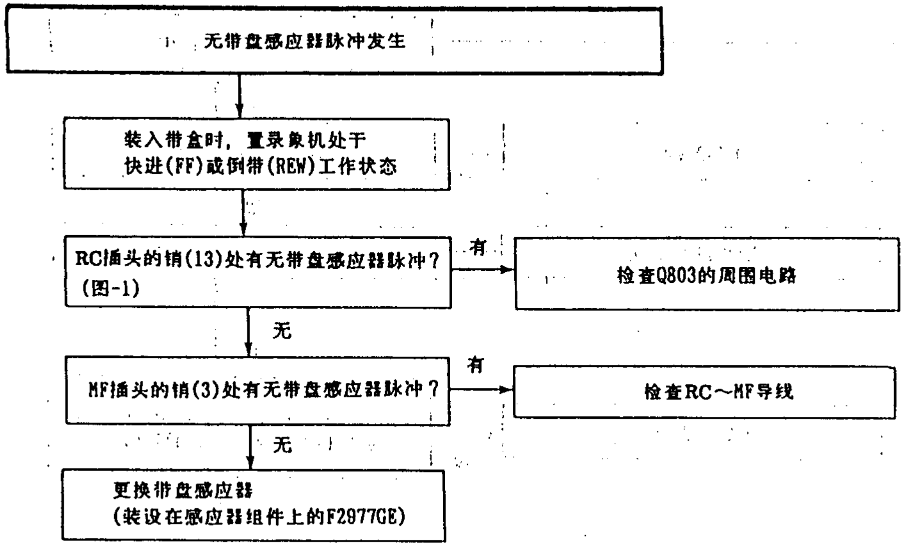

磁鼓伺服电路不能执行功能
IC801的销(27)和(28)处有无7.16兆赫的振荡？
无
检查X801、C811以及C812
有
再现工作状态下
录象工作状态下
IC801的销(51)处有无参比信号（垂直同步(L)）？
无
检查Y/C电路中的复合同步信号发生器以及IC804中的垂直同步信号发生器
有
在IC801的销(53)处有无磁鼓FG信号存在？
无
IC702的销(26)处有无被放大的磁鼓FG信号？
有
检查磁鼓FG信号线路
无
检查ME插头的销(4)以及磁鼓马达
有
在IC801的销(50)处有无磁头开关脉冲存在？
无
参阅流程图16（磁头开关脉冲的故障检查）
有
在IC801的销(63)处有无磁鼓APC信号输出？在IC801的销(62)处有无磁鼓AFC信号输出？
无
更换IC801
有
ME插头的销(6)处有无磁鼓控制电压施加？
无
ME插头的销(6)处有无磁鼓控制电压施加？
有
检查AD与ME插头之间的导线
无
Q704的APC噪声抑制电路是否正常动作？
否
检查Q704
是
IC701（销(16)、(17)以及(18)）的磁鼓误差信号放大器电路是否正常动作？
否
更换IC701
是
IC801的销(21)是否处于高阻抗状态？
否
更换IC801
是
有
更换磁鼓马达

流程图14　主导轴伺服电路的故障检查


主导轴伺服电路不能执行功能
录象状态和/或再现状态是否不正常？
只是在再现工作状态时不正常
只是在录象工作状态下不正常
①
②
IC801的销(48)处是否出现再现CTL信号？
IC801的销(61)处有无主导轴APC信号？
检查AF-MC导线与IC701之间的主导轴FG信号线路
检查以及/或者更换主导轴马达设备
更换IC801
IC701(销(7)～(4)以及(15))的CTL放大器电路是否正常动作？
检查IC801的销(48)与IC701的销(15)之间的线路
IC701(销(7)～(4)以及(15))的周围电路是否正常动作？
更换不良部件
AC-MR导线系统是否正常？
更换AC-MR导线
A/C磁头是否正常动作
更换A/C磁头
调整A/C磁头的高度
检查Q701以及复合-同步信号线路
检查X801、C811以及C812
在IC801的销(51)处是否出现垂直-同步信号(L)？
IC801的销(27)和(28)处是否振荡出7.16兆赫信号？
在IC801的销(46)处有无录象CTL信号输出？
IC801的销(54)处是否出现主导轴FG信号？
IC801的销(60)处有无主导轴AFC信号？
更换IC801
IC801的销(61)处有无主导轴APC信号？
在IC801的销(48)处是否出现再现信号？
IC701(销(4)～(8)以及(15))的录象CTL放大器电路是否正常动作？
IC701的销(4)、(5)、(6)以及(8)是否正常？
更换IC701
IC801的销(22)是否正常？
更换IC801
检查“(1)”
检查“(2)”
更换主导轴马达
是
否
有
无

流程图15　卷带盘脉冲发生器的故障检查

注：上接流程图8，装带马达以及出盒动作的故障检查


无带盘感应器脉冲发生
装入带盒时，置录象机处于快进(FF)或倒带(REW)工作状态
RC插头的销(13)处有无带盘感应器脉冲？(图-1)
有
检查Q803的周围电路
无
MF插头的销(3)处有无带盘感应器脉冲？
有
检查RC～MF导线
无
更换带盘感应器
(装设在感应器组件上的F2977GE)

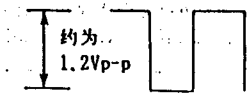
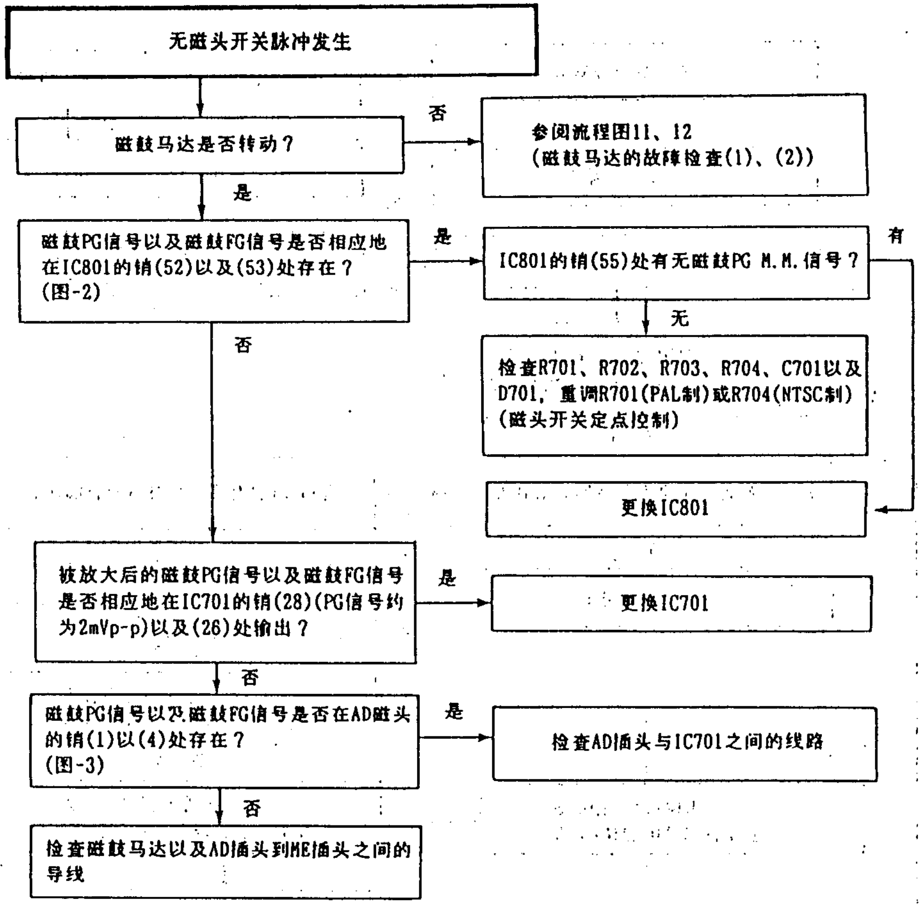


图-1

流程图16　磁头开关脉冲的故障检查

注：上接流程图13，磁鼓伺服电路的故障检查


无磁头开关脉冲发生
磁鼓马达是否转动？
否
参阅流程图11、12
(磁鼓马达的故障检查(1)、(2))
是
磁鼓PG信号以及磁鼓FG信号是否相应地在IC801的销(52)以及(53)处存在？
(图-2)
是
IC801的销(55)处有无磁鼓PG M.M.信号？
有
无
检查R701、R702、R703、R704、C701以及D701，重调R701(PAL制)或R704(NTSC制)
(磁头开关定点控制)
更换IC801
否
被放大后的磁鼓PG信号以及磁鼓FG信号是否相应地在IC701的销(28)(PG信号约为2mVp-p)以及(26)处输出？
是
更换IC701
否
磁鼓PG信号以及磁鼓FG信号是否在AD磁头的销(1)以(4)处存在？
(图-3)
是
检查AD插头与IC701之间的线路
否
检查磁鼓马达以及AD插头到ME插头之间的导线

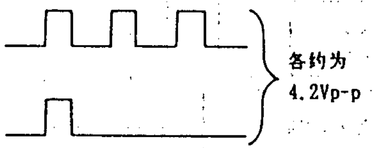


图-2

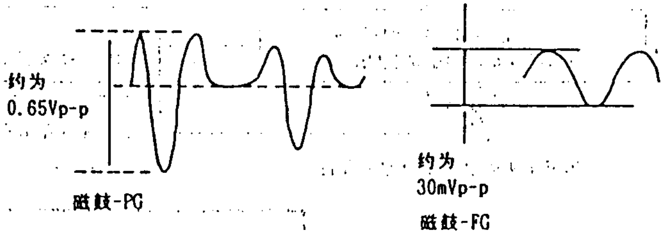
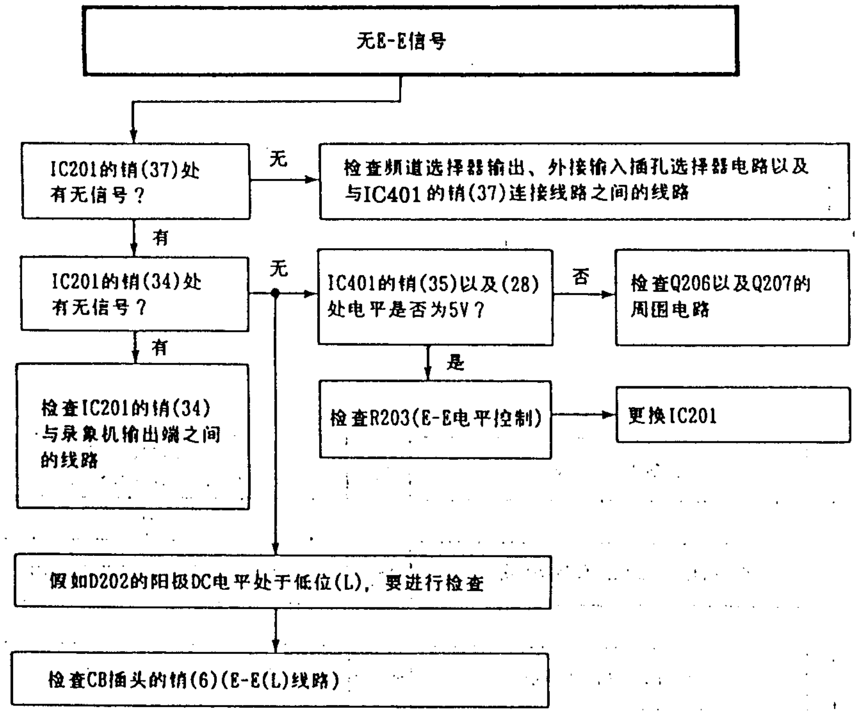
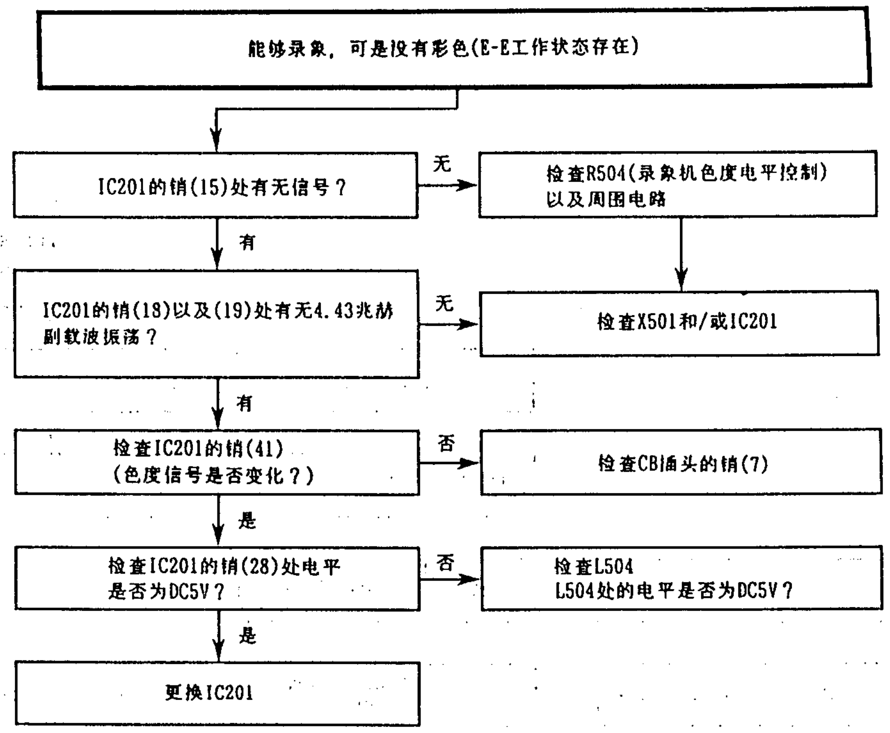

约为
0.65Vp-p
磁鼓-PG
约为
30mVp-p
磁鼓-FG

图-3

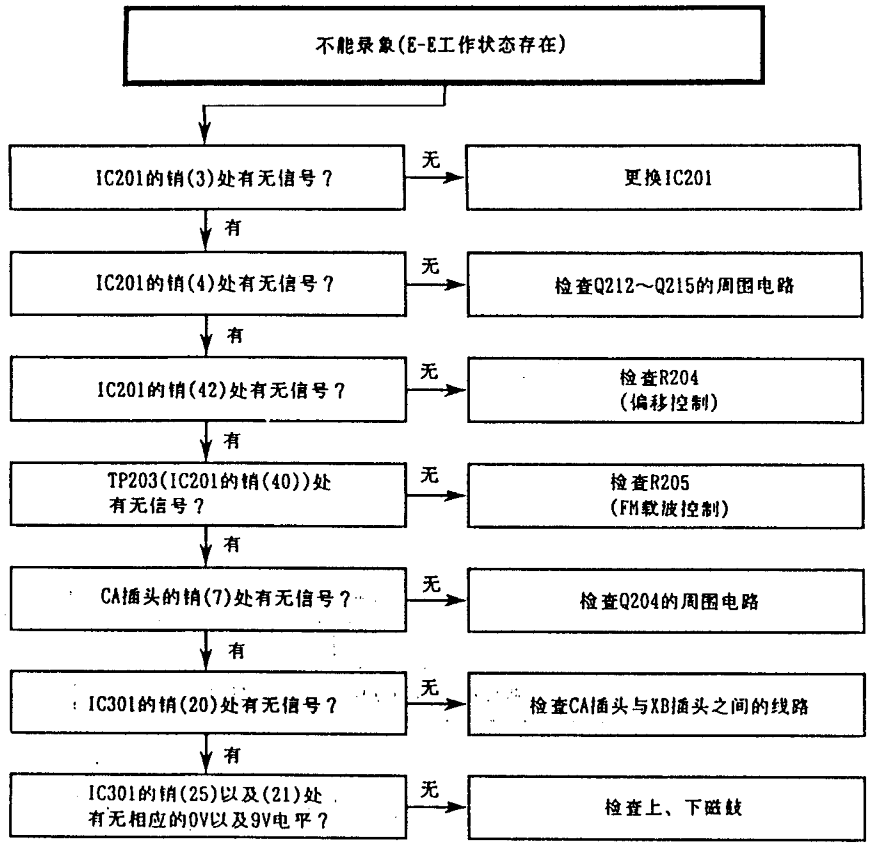
流程图17　E-E工作状态的故障检查


无E-E信号
IC201的销(37)处有无信号？
无
检查频道选择器输出、外接输入插孔选择器电路以及与IC401的销(37)连接线路之间的线路
有
IC201的销(34)处有无信号？
无
IC401的销(35)以及(28)处电平是否为5V？
否
检查Q206以及Q207的周围电路
是
检查R203(E-E电平控制)
更换IC201
有
检查IC201的销(34)与录象机输出端之间的线路
假如D202的阳极DC电平处于低位(L)，要进行检查
检查CB插头的销(6)(E-E(L)线路)

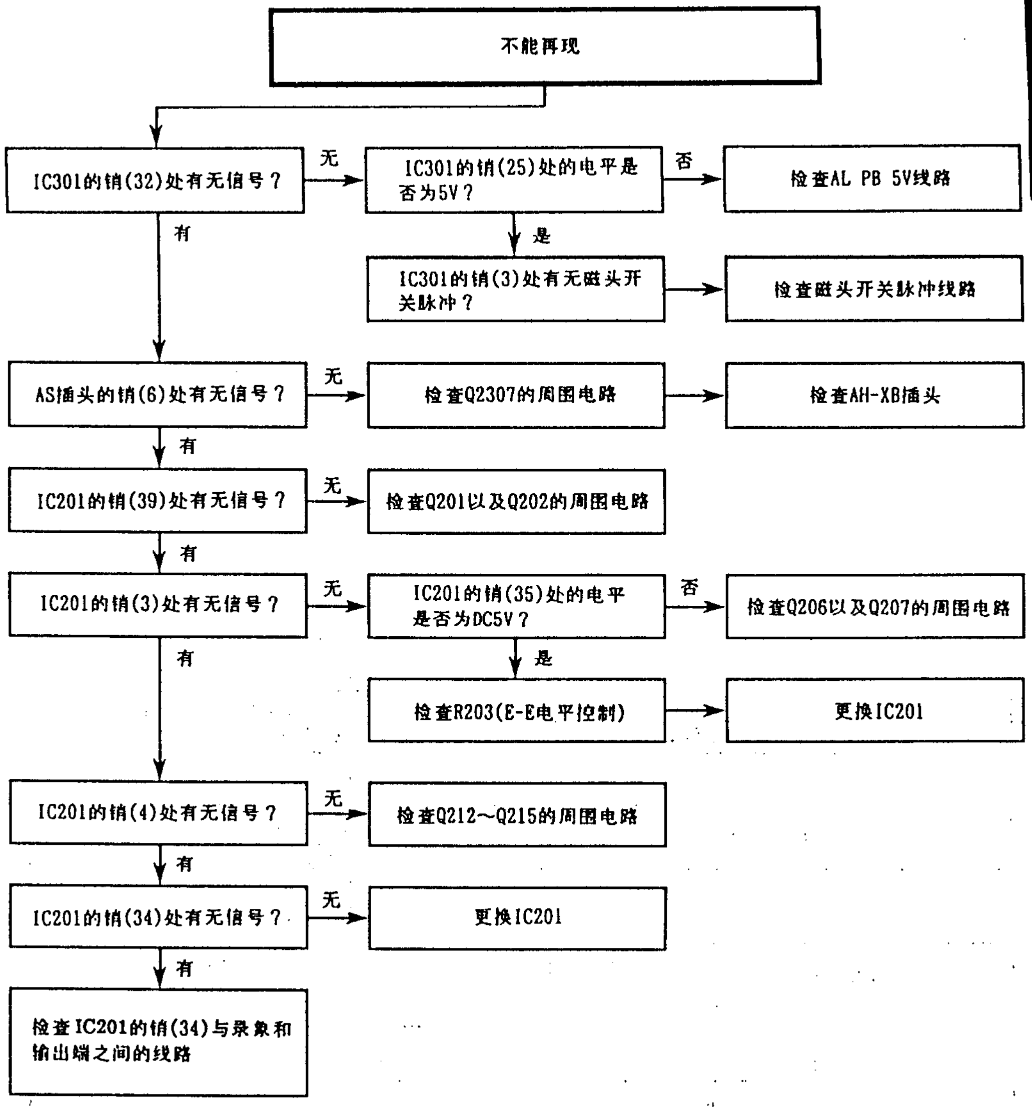
流程图18　录象状态（色度）的故障检查


能够录象，可是没有彩色(E-E工作状态存在)
IC201的销(15)处有无信号？
无
检查R504(录象机色度电平控制)以及周围电路
有
IC201的销(18)以及(19)处有无4.43兆赫副载波振荡？
无
检查X501和/或IC201
有
检查IC201的销(41)（色度信号是否变化？）
否
检查CB插头的销(7)
是
检查IC201的销(28)处电平是否为DC5V？
否
检查L504 L504处的电平是否为DC5V？
是
更换IC201

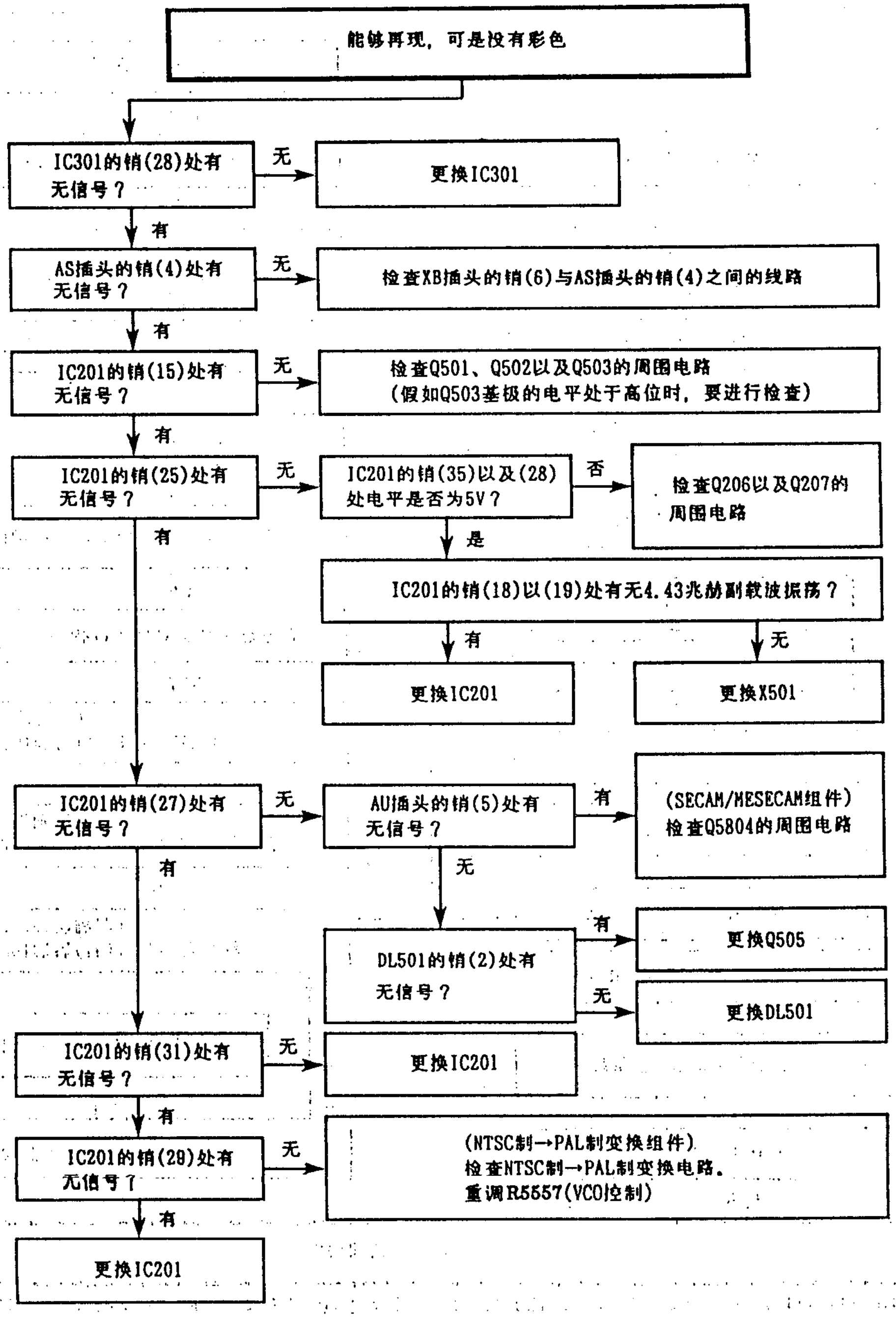
流程图19　录象状态（亮度）的故障检查


不能录象(E-E工作状态存在)
IC201的销(3)处有无信号？
无
更换IC201
有
IC201的销(4)处有无信号？
无
检查Q212~Q215的周围电路
有
IC201的销(42)处有无信号？
无
检查R204
(偏移控制)
有
TP203(IC201的销(40))处
有无信号？
无
检查R205
(FM载波控制)
有
CA插头的销(7)处有无信号？
无
检查Q204的周围电路
有
IC301的销(20)处有无信号？
无
检查CA插头与XB插头之间的线路
有
IC301的销(25)以及(21)处
有无相应的0V以及9V电平？
无
检查上、下磁鼓

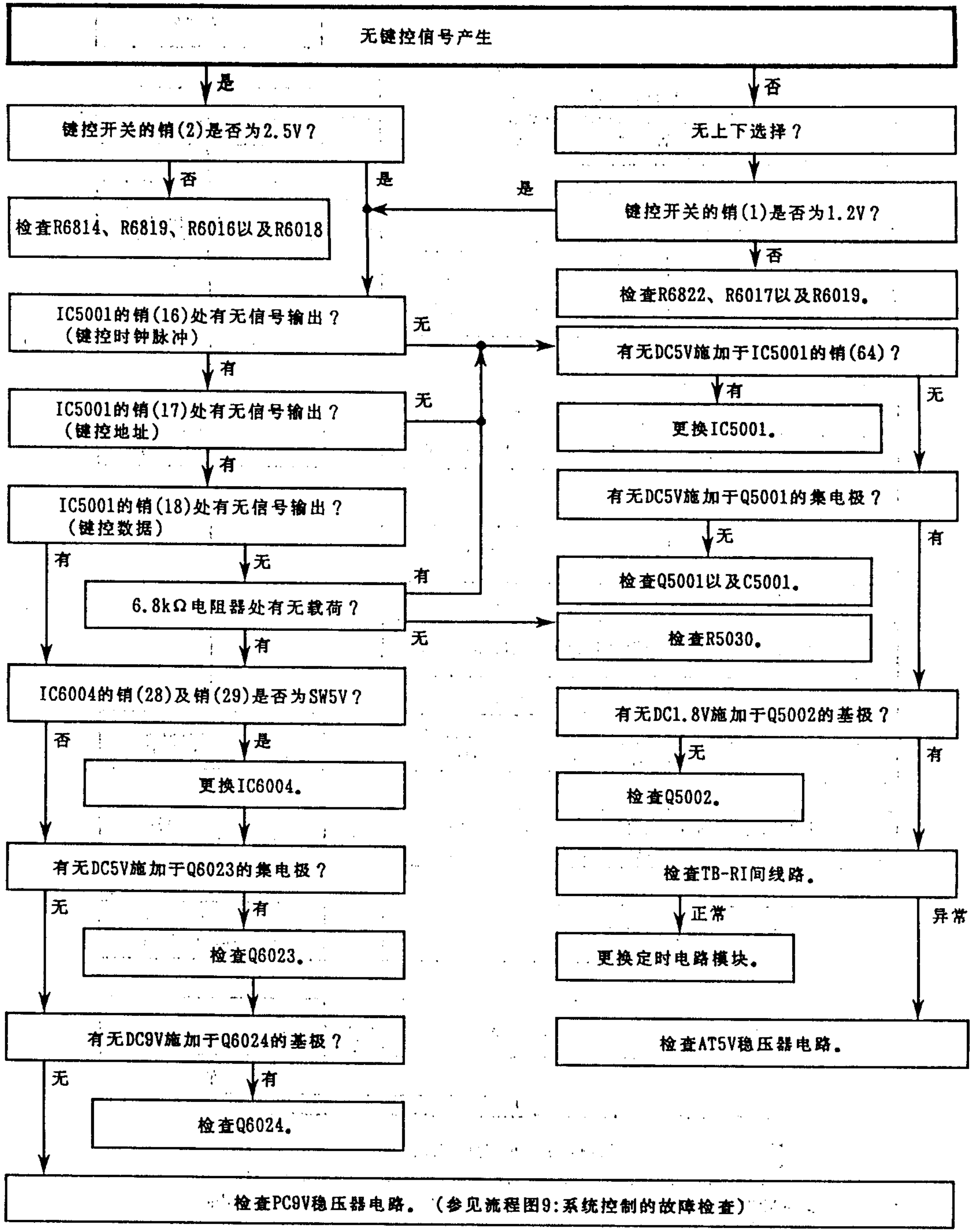
流程图20　再现状态（亮度）的故障检查


不能再现
IC301的销(32)处有无信号？
无
IC301的销(25)处的电平是
否为5V？
否
检查AL PB 5V线路
是
IC301的销(3)处有无磁头开
关脉冲？
检查磁头开关脉冲线路
有
AS插头的销(6)处有无信号？
无
检查Q2307的周围电路
检查AH-XB插头
有
IC201的销(39)处有无信号？
无
检查Q201以及Q202的周围电路
有
IC201的销(3)处有无信号？
无
IC201的销(35)处的电平
是否为DC5V？
否
检查Q206以及Q207的周围电路
是
检查R203(E-E电平控制)
更换IC201
有
IC201的销(4)处有无信号？
无
检查Q212~Q215的周围电路
有
IC201的销(34)处有无信号？
无
更换IC201
有
检查IC201的销(34)与录象和
输出端之间的线路

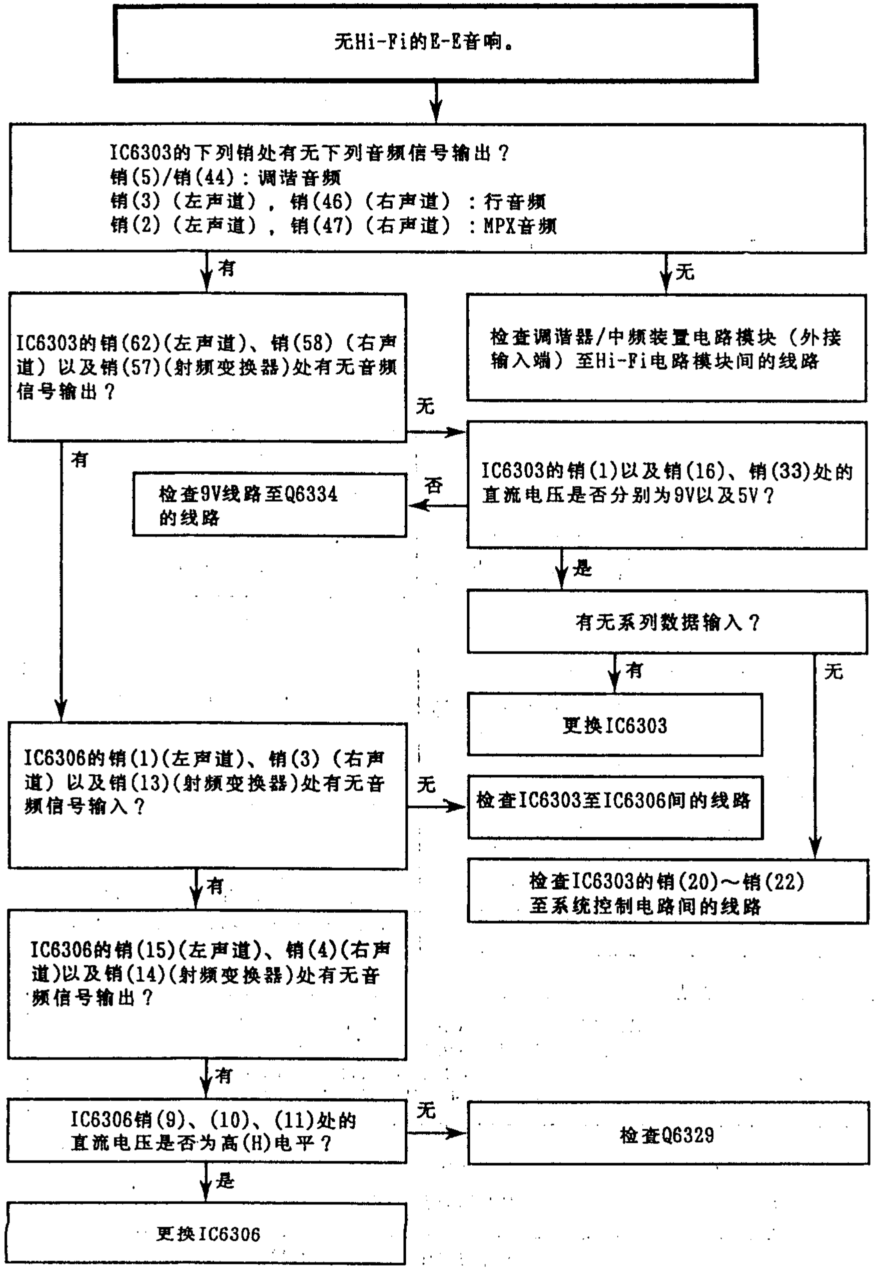
流程图21　再现状态（色度）的故障检查


能够再现，可是没有彩色
IC301的销(28)处有无信号？
无
更换IC301
有
AS插头的销(4)处有无信号？
无
检查XB插头的销(6)与AS插头的销(4)之间的线路
有
IC201的销(15)处有无信号？
无
检查Q501、Q502以及Q503的周围电路（假如Q503基极的电平处于高位时，要进行检查）
有
IC201的销(25)处有无信号？
无
IC201的销(35)以及(28)处电平是否为5V？
否
检查Q206以及Q207的周围电路
是
IC201的销(18)以(19)处有无4.43兆赫副载波振荡？
有
更换IC201
无
更换X501
有
IC201的销(27)处有无信号？
无
AU插头的销(5)处有无信号？
有
(SECAM/MESECAM组件)检查Q5804的周围电路
无
DL501的销(2)处有无信号？
有
更换Q505
无
更换DL501
有
IC201的销(31)处有无信号？
无
更换IC201
有
IC201的销(29)处有无信号？
无
(NTSC制→PAL制变换组件)
检查NTSC制→PAL制变换电路。
重调R5557(VCO控制)
有
更换IC201

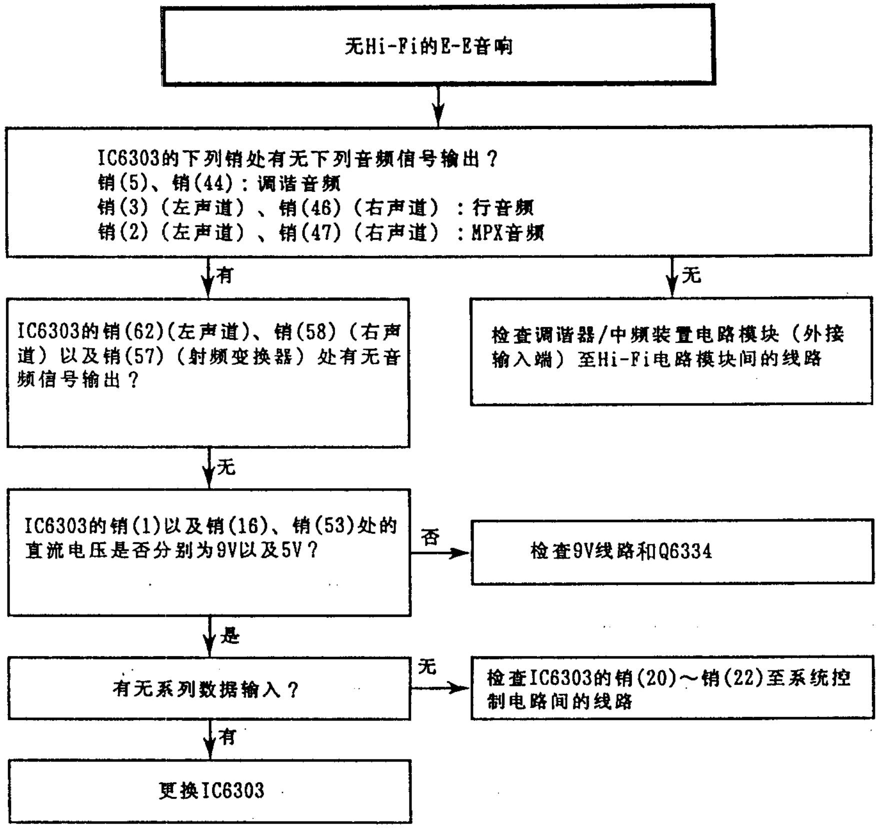
流程图22 键控系统的故障检查（仅限于VC-H980/H980ETS两型号）


无键控信号产生
是
否
键控开关的销(2)是否为2.5V？
无上下选择？
否
是
是
键控开关的销(1)是否为1.2V？
检查R6814、R6819、R6016以及R6018
否
检查R6822、R6017以及R6019。
IC5001的销(16)处有无信号输出？
（键控时钟脉冲）
无
有无DC5V施加于IC5001的销(64)？
有
有
无
IC5001的销(17)处有无信号输出？
（键控地址）
无
更换IC5001。
有
有无DC5V施加于Q5001的集电极？
IC5001的销(18)处有无信号输出？
（键控数据）
有
无
无
有
有
检查Q5001以及C5001。
6.8kΩ电阻器处有无载荷？
无
检查R5030。
有
IC6004的销(28)及销(29)是否为SW5V？
有无DC1.8V施加于Q5002的基极？
否
是
无
有
更换IC6004。
检查Q5002。
有无DC5V施加于Q6023的集电极？
检查TB-RI间线路。
无
有
正常
异常
检查Q6023。
更换定时电路模块。
有无DC9V施加于Q6024的基极？
检查AT5V稳压器电路。
无
有
检查Q6024。
检查PC9V稳压器电路。（参见流程图9:系统控制的故障检查）

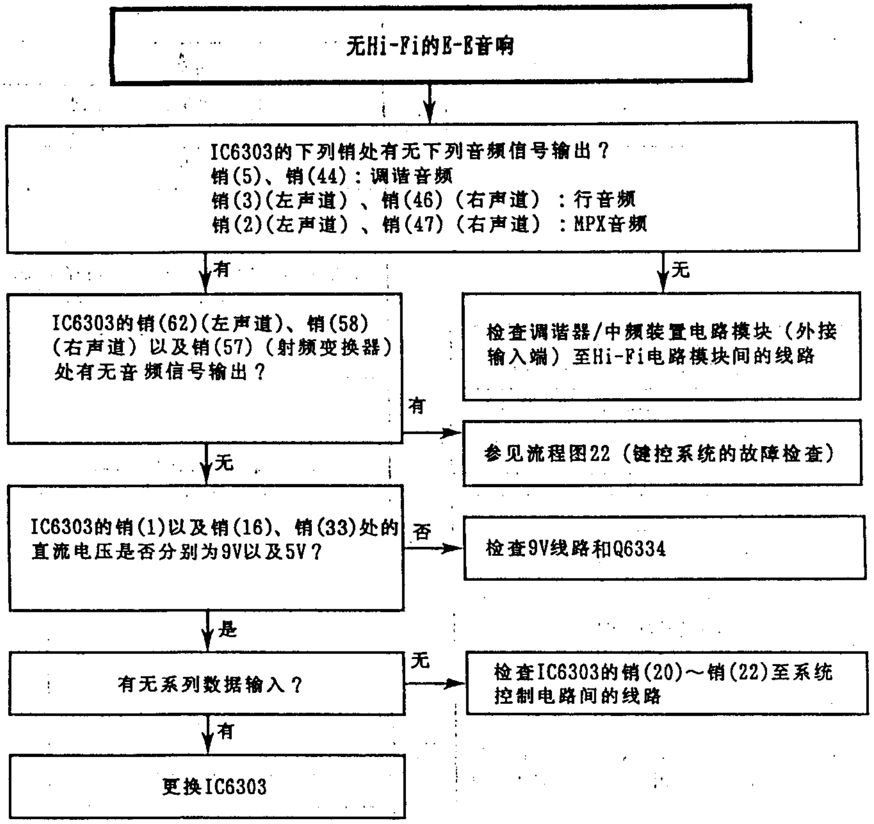
流程图23 Hi-Fi电路的故障检查(1)(仅限于VC-H96/H96ETS两型号)


无Hi-Fi的E-E音响。
IC6303的下列销处有无下列音频信号输出？
销(5)/销(44)：调谐音频
销(3)（左声道），销(46)（右声道）：行音频
销(2)（左声道），销(47)（右声道）：MPX音频
有
无
IC6303的销(62)(左声道)、销(58)（右声道）以及销(57)(射频变换器)处有无音频信号输出？
检查调谐器/中频装置电路模块（外接输入端）至Hi-Fi电路模块间的线路
无
有
IC6303的销(1)以及销(16)、销(33)处的直流电压是否分别为9V以及5V？
否
检查9V线路至Q6334的线路
是
有无系列数据输入？
有
无
更换IC6303
IC6306的销(1)(左声道)、销(3)（右声道）以及销(13)(射频变换器)处有无音频信号输入？
无
检查IC6303至IC6306间的线路
检查IC6303的销(20)～销(22)至系统控制电路间的线路
有
IC6306的销(15)(左声道)、销(4)(右声道)以及销(14)(射频变换器)处有无音频信号输出？
有
IC6306销(9)、(10)、(11)处的直流电压是否为高(H)电平？
无
检查Q6329
是
更换IC6306

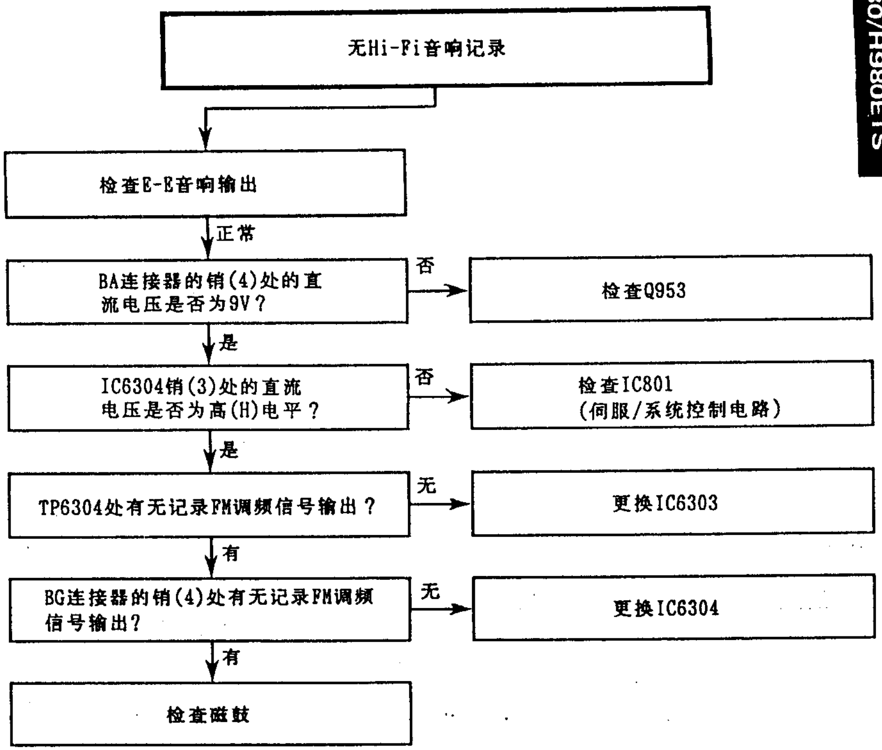
流程图23 Hi-Fi电路的故障检查(1)(仅限于VC-H91/H91ETS两型号)


无Hi-Fi的E-E音响
IC6303的下列销处有无下列音频信号输出？
销(5)、销(44)：调谐音频
销(3)（左声道）、销(46)（右声道）：行音频
销(2)（左声道）、销(47)（右声道）：MPX音频
有
无
IC6303的销(62)(左声道)、销(58)（右声道）以及销(57)（射频变换器）处有无音频信号输出？
检查调谐器/中频装置电路模块（外接输入端）至Hi-Fi电路模块间的线路
无
IC6303的销(1)以及销(16)、销(53)处的直流电压是否分别为9V以及5V？
否
检查9V线路和Q6334
是
有无系列数据输入？
无
检查IC6303的销(20)～销(22)至系统控制电路间的线路
有
更换IC6303

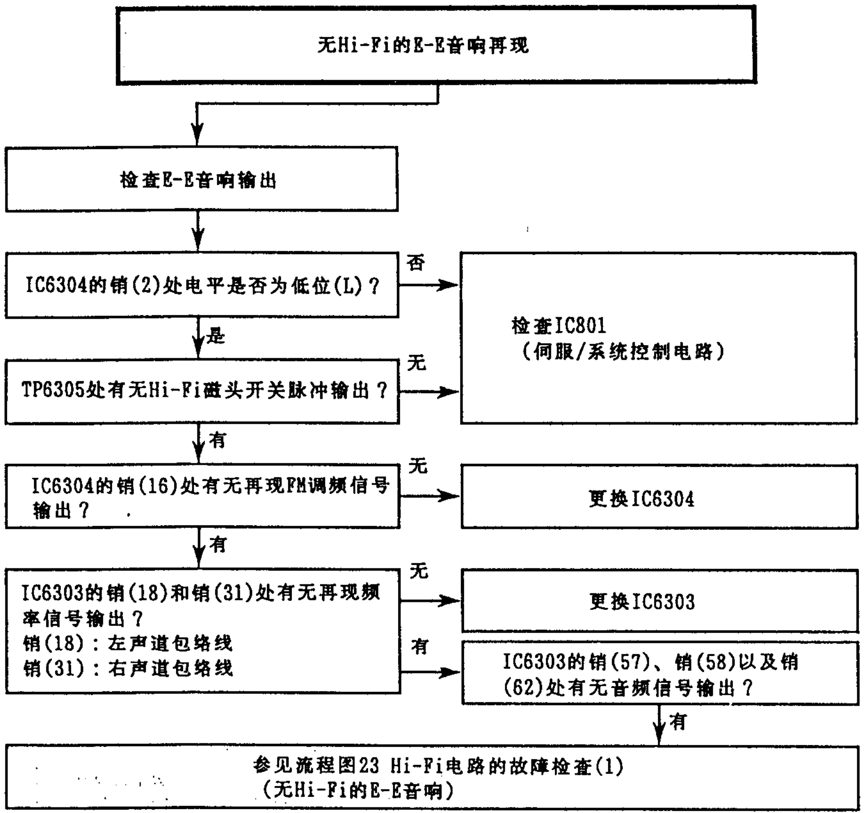
流程图23 Hi-Fi电路的故障检查(1)(仅限于VC-H980/H980ETS两型号)


无Hi-Fi的E-E音响
IC6303的下列销处有无下列音频信号输出？
销(5)、销(44)：调谐音频
销(3)(左声道)、销(46)(右声道)：行音频
销(2)(左声道)、销(47)(右声道)：MPX音频
有
无
检查调谐器/中频装置电路模块（外接输入端）至Hi-Fi电路模块间的线路
IC6303的销(62)(左声道)、销(58)(右声道)以及销(57)(射频变换器)处有无音频信号输出？
有
参见流程图22（键控系统的故障检查）
无
IC6303的销(1)以及销(16)、销(33)处的直流电压是否分别为9V以及5V？
否
检查9V线路和Q6334
是
有无系列数据输入？
无
检查IC6303的销(20)～销(22)至系统控制电路间的线路
有
更换IC6303

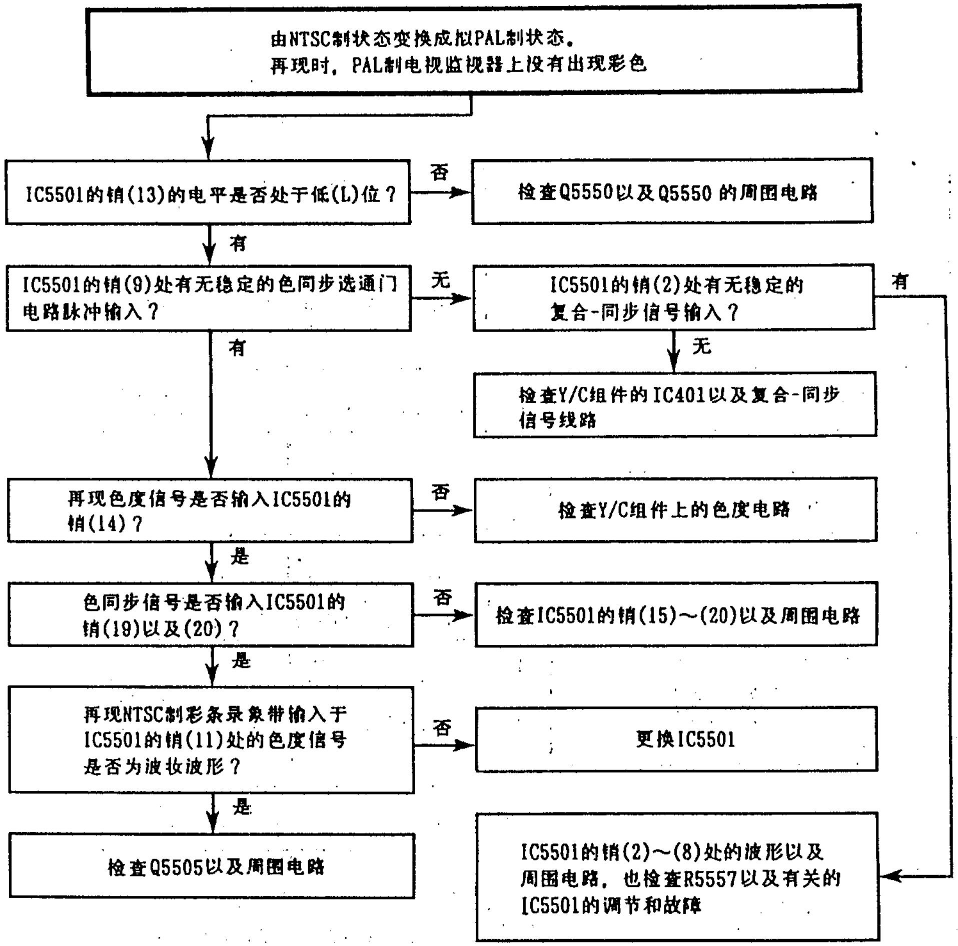
流程图24 Hi-Fi电路的故障检查(2)


无Hi-Fi音响记录
检查E-E音响输出
正常
BA连接器的销(4)处的直流电压是否为9V？
否
检查Q953
是
IC6304销(3)处的直流电压是否为高(H)电平？
否
检查IC801（伺服/系统控制电路）
是
TP6304处有无记录FM调频信号输出？
无
更换IC6303
有
BG连接器的销(4)处有无记录FM调频信号输出？
无
更换IC6304
有
检查磁鼓

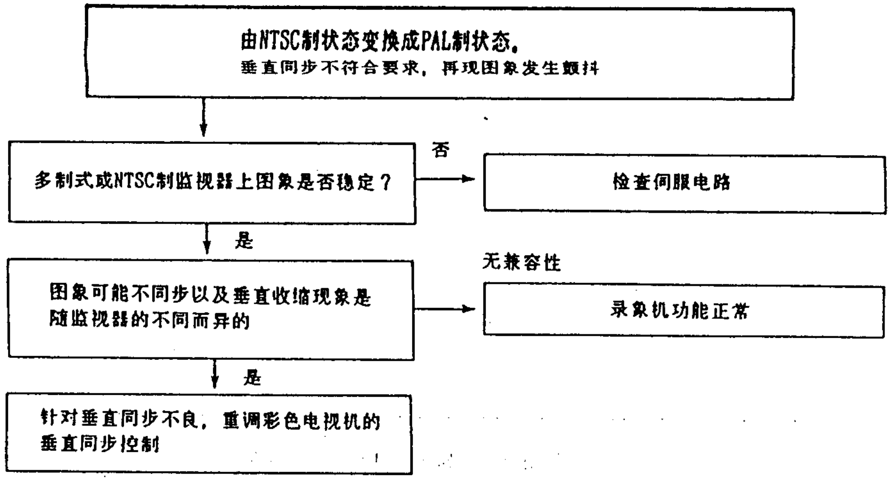
流程图25 Hi-Fi电路的故障检查(3)


无Hi-Fi的E-E音响再现
检查E-E音响输出
IC6304的销(2)处电平是否为低位(L)？
否
是
TP6305处有无Hi-Fi磁头开关脉冲输出？
无
检查IC801
（伺服/系统控制电路）
有
IC6304的销(16)处有无再现FM调频信号输出？
无
更换IC6304
有
IC6303的销(18)和销(31)处有无再现频率信号输出？
销(18)：左声道包络线
销(31)：右声道包络线
无
更换IC6303
有
IC6303的销(57)、销(58)以及销(62)处有无音频信号输出？
有
参见流程图23 Hi-Fi电路的故障检查(1)
（无Hi-Fi的E-E音响）

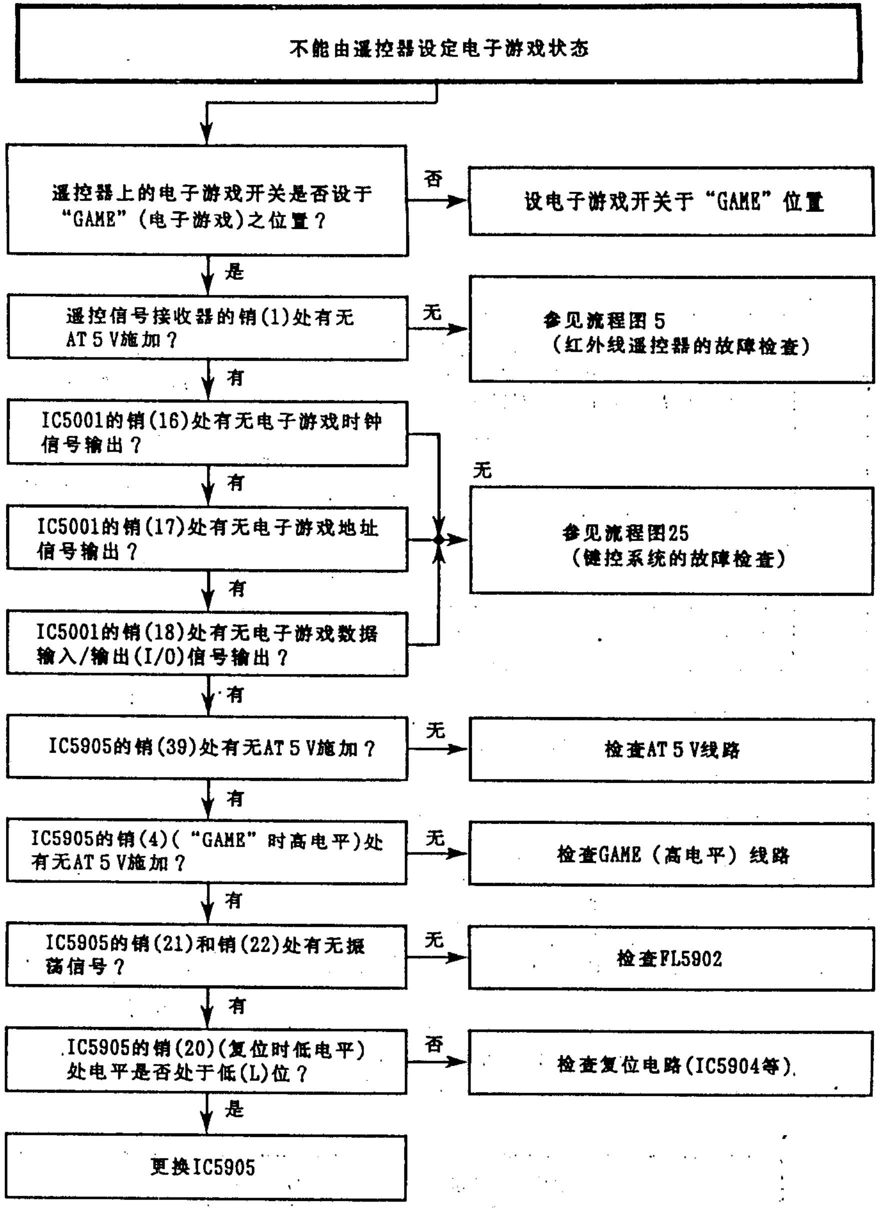
流程图26 NTSC制→拟PAL制变换的故障检查(1)


由NTSC制状态变换成拟PAL制状态。
再现时，PAL制电视监视器上没有出现彩色
IC5501的销(13)的电平是否处于低(L)位？
否
检查Q5550以及Q5550 的周围电路
有
IC5501的销(9)处有无稳定的色同步选通门电路脉冲输入？
无
IC5501的销(2)处有无稳定的复合-同步信号输入？
有
无
检查Y/C组件的IC401以及复合-同步信号线路
有
再现色度信号是否输入IC5501的销(14)？
否
检查Y/C组件上的色度电路
是
色同步信号是否输入IC5501的销(19)以及(20)？
否
检查IC5501的销(15)～(20)以及周围电路
是
再现NTSC制彩条录象带输入于IC5501的销(11)处的色度信号是否为波妆波形？
否
更换IC5501
是
检查Q5505以及周围电路
IC5501的销(2)～(8)处的波形以及周围电路，也检查R5557以及有关的IC5501的调节和故障

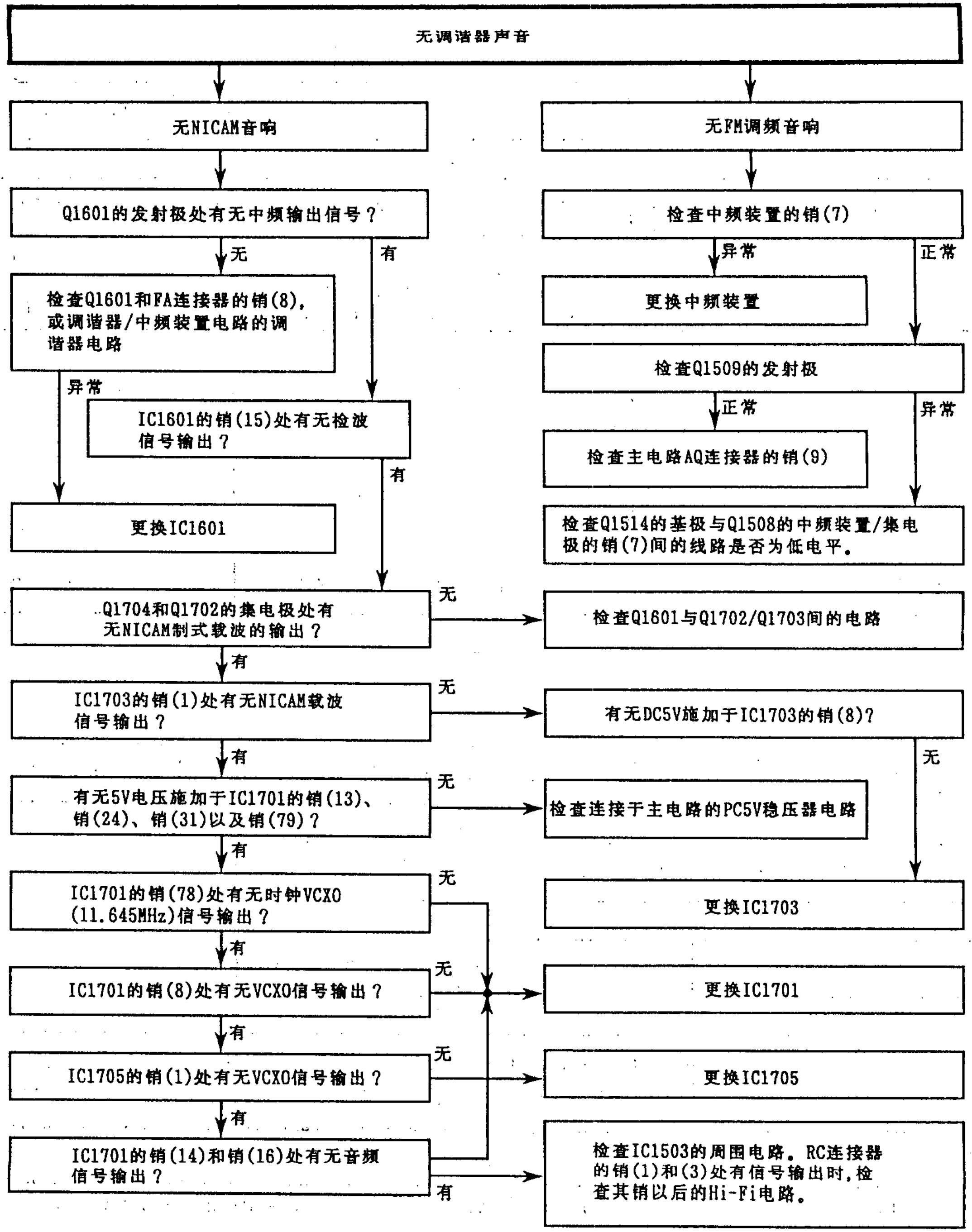
流程图27　NTSC制→拟PAL制变换的故障检查（2）


由NTSC制状态变换成PAL制状态，
垂直同步不符合要求，再现图象发生颤抖
多制式或NTSC制监视器上图象是否稳定？
否
检查伺服电路
是
图象可能不同步以及垂直收缩现象是随监视器的不同而异的
无兼容性
录象机功能正常
是
针对垂直同步不良，重调彩色电视机的垂直同步控制

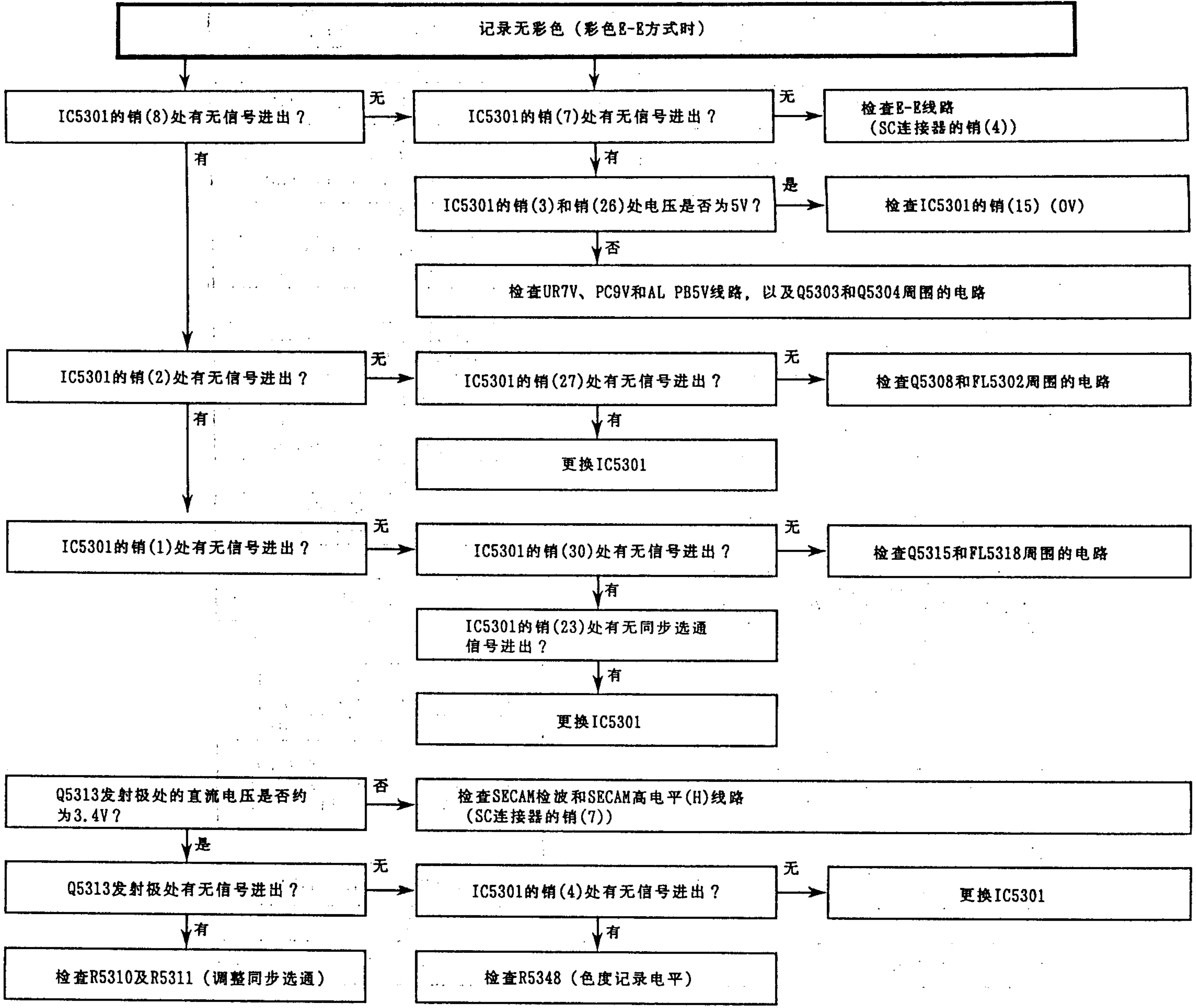
流程图28　电子游戏系统的故障检查仅限于VC-H96/H96ETS/H980三型号


不能由遥控器设定电子游戏状态
遥控器上的电子游戏开关是否设于“GAME”（电子游戏）之位置？
否
设电子游戏开关于“GAME”位置
是
遥控信号接收器的销(1)处有无AT 5 V施加？
无
参见流程图5
（红外线遥控器的故障检查）
有
IC5001的销(16)处有无电子游戏时钟信号输出？
有
IC5001的销(17)处有无电子游戏地址信号输出？
有
IC5001的销(18)处有无电子游戏数据输入/输出(I/O)信号输出？
无
参见流程图25
（键控系统的故障检查）
有
IC5905的销(39)处有无AT 5 V施加？
无
检查AT 5 V线路
有
IC5905的销(4)（“GAME”时高电平）处有无AT 5 V施加？
无
检查GAME（高电平）线路
有
IC5905的销(21)和销(22)处有无振荡信号？
无
检查FL5902
有
IC5905的销(20)(复位时低电平)处电平是否处于低(L)位？
否
检查复位电路(IC5904等)
是
更换IC5905

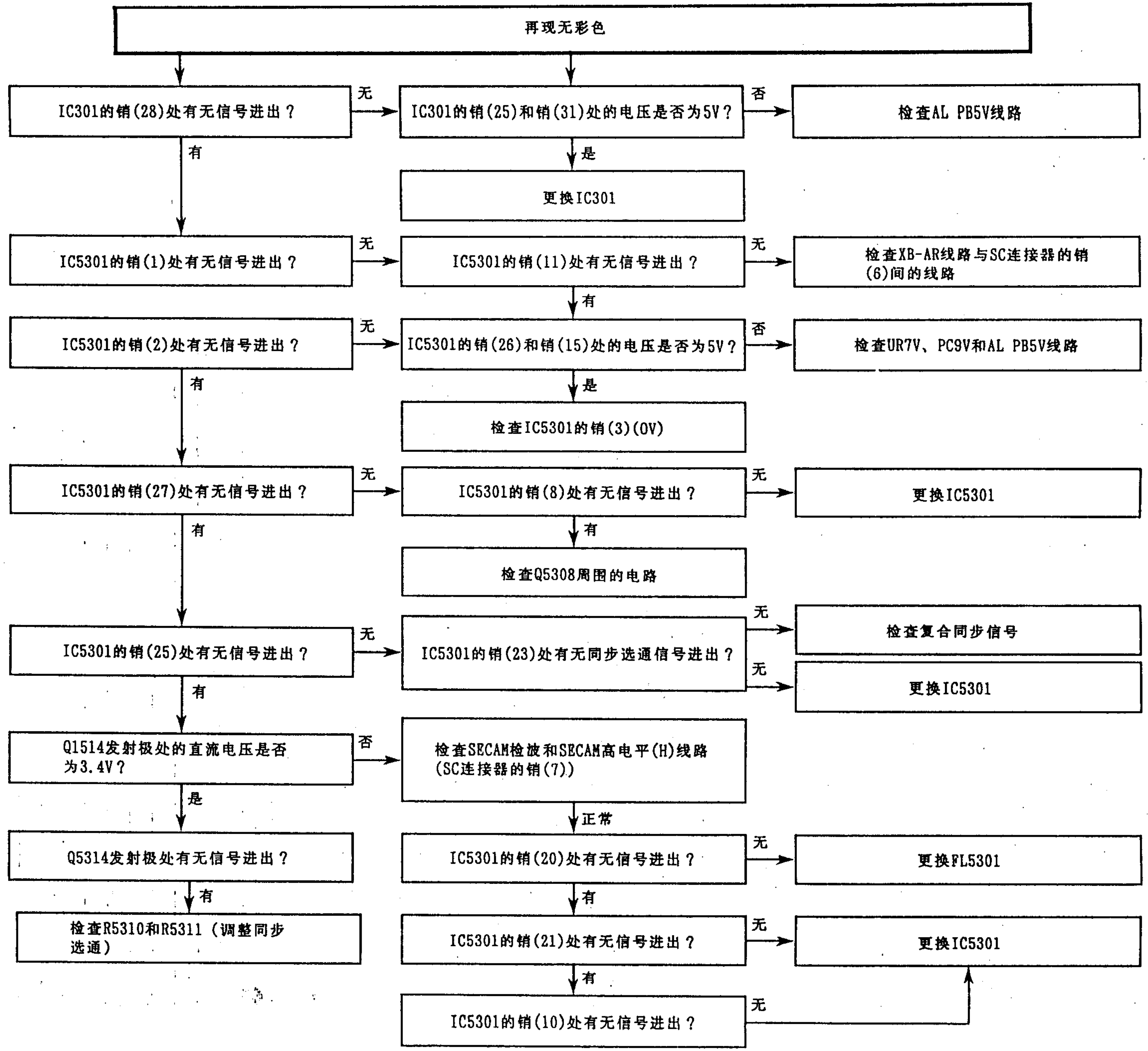
流程图29 NICAM电路的故障检查（VC-H96/H96ETS/H980/H980ETS四型号）


无调谐器声音
无NICAM音响
无FM调频音响
Q1601的发射极处有无中频输出信号？
无
有
检查Q1601和FA连接器的销(8)，或调谐器/中频装置电路的调谐器电路
异常
IC1601的销(15)处有无检波信号输出？
有
更换IC1601
检查中频装置的销(7)
异常
正常
更换中频装置
检查Q1509的发射极
正常
异常
检查主电路AQ连接器的销(9)
检查Q1514的基极与Q1508的中频装置/集电极的销(7)间的线路是否为低电平。
Q1704和Q1702的集电极处有无NICAM制式载波的输出？
无
检查Q1601与Q1702/Q1703间的电路
有
IC1703的销(1)处有无NICAM载波信号输出？
无
有无DC5V施加于IC1703的销(8)?
无
有
有无5V电压施加于IC1701的销(13)、销(24)、销(31)以及销(79)？
无
检查连接于主电路的PC5V稳压器电路
有
IC1701的销(78)处有无时钟VCXO (11.645MHz)信号输出？
无
更换IC1703
有
IC1701的销(8)处有无VCXO信号输出？
无
更换IC1701
有
IC1705的销(1)处有无VCXO信号输出？
无
更换IC1705
有
IC1701的销(14)和销(16)处有无音频信号输出？
有
检查IC1503的周围电路。RC连接器的销(1)和(3)处有信号输出时，检查其销以后的Hi-Fi电路。

流程图30 SECAM制式色度记录状态时的故障检查（VC-H91/H91ETS两型号）


记录无彩色（彩色E-E方式时）
IC5301的销(8)处有无信号进出？
无
有
IC5301的销(7)处有无信号进出？
无
检查E-E线路
(SC连接器的销(4))
有
IC5301的销(3)和销(26)处电压是否为5V？
是
检查IC5301的销(15)（0V)
否
检查UR7V、PC9V和AL PB5V线路，以及Q5303和Q5304周围的电路
IC5301的销(2)处有无信号进出？
无
有
IC5301的销(27)处有无信号进出？
无
检查Q5308和FL5302周围的电路
有
更换IC5301
IC5301的销(1)处有无信号进出？
无
IC5301的销(30)处有无信号进出？
无
检查Q5315和FL5318周围的电路
有
IC5301的销(23)处有无同步选通信号进出？
有
更换IC5301
Q5313发射极处的直流电压是否约为3.4V？
否
检查SECAM检波和SECAM高电平(H)线路
(SC连接器的销(7))
是
Q5313发射极处有无信号进出？
无
IC5301的销(4)处有无信号进出？
无
更换IC5301
有
检查R5348（色度记录电平）
有
检查R5310及R5311（调整同步选通）

流程图31 SECAM制式色度再现状态时的故障检查（VC-H91/H91ETS两型号）


再现无彩色
IC301的销(28)处有无信号进出？
无
IC301的销(25)和销(31)处的电压是否为5V？
否
检查AL PB5V线路
是
更换IC301
有
IC5301的销(1)处有无信号进出？
无
IC5301的销(11)处有无信号进出？
无
检查XB-AR线路与SC连接器的销(6)间的线路
有
IC5301的销(2)处有无信号进出？
无
IC5301的销(26)和销(15)处的电压是否为5V？
否
检查UR7V、PC9V和AL PB5V线路
是
检查IC5301的销(3)(0V)
有
IC5301的销(27)处有无信号进出？
无
IC5301的销(8)处有无信号进出？
无
更换IC5301
有
检查Q5308周围的电路
有
IC5301的销(25)处有无信号进出？
无
IC5301的销(23)处有无同步选通信号进出？
无
检查复合同步信号
无
更换IC5301
有
Q1514发射极处的直流电压是否为3.4V？
否
检查SECAM检波和SECAM高电平(H)线路(SC连接器的销(7))
正常
IC5301的销(20)处有无信号进出？
无
更换FL5301
有
IC5301的销(21)处有无信号进出？
无
更换IC5301
有
IC5301的销(10)处有无信号进出？
无
是
Q5314发射极处有无信号进出？
有
检查R5310和R5311（调整同步选通）

定时器IC5003(E²PROM)的更换

<拆装检查前的注意事项>

定时器装置中的IC5003 E² PROM(VHICA93C46-1)经更换后，请按下述步骤重新编写设定其记忆内容。
IC5003 E² PROM记忆内容的出产设定，应其型号的不同而异。
因此，更换后，有必要对其记忆内容按要求重新编写设定之。
另外，IC5003 E² PROM经更换后，应置录象机于漫放和静止再现状态，重新对伺服电路进行调试。

●E² PROM记忆内容的编写设定

1. 触按“OPERATE”(执行)键钮，以打开其电源。
2. 用一根引线短接TEST26和TEST27的搭接销(安装在定时器组件上)，设录象机处于测试状态。
3. 确认电视机荧光显象管亮启正常，然后拆去引线。
4. 触按频道设定键钮，设录象机处于频道设定状态。
5. 再短接TEST26和TEST27的搭接销。为此，使录象机进入重编记忆内容之状态。
6. 借助频道上移(+)、下移(-)键钮，从I00～I19号码中选定对应功能(见下表)的正确设定。
   其号码及其功能设定按E² PROM变换关系表示于屏幕上。
   然后，根据要求，触按“DISPLAY”(表示)键钮，以选入其功能(ON)；触按“CLEAR”(取消)键钮，以取消其功能的选入(OFF)。
   再现和取消键钮安装在遥控器上。
   *触按“DISPLAY”(表示)键钮时，记忆功能号码闪现表示。
   *触按(OFF)取消键钮时，记忆功能号码点亮。
7. 短接TEST26和TEST27的搭接销，取消录象机调试状态。
8. 再次触按“CHANNEL SET”(频道设定)键钮，取消录象机所处的频道设定状态。
9. 短接定时器电路中的J307和J308之阴极，设定内容改为十六进位制表示。这样，可以方便地对设定内容的正误进行检查。
10. 最后，触按自动电平控制(ALC)键钮，取消录象机所处的测试状态。

例：“ON”和“OFF”，用十六进位记数表示，分别记为“1”和“0”。
I00～I19的号码被分为五组，每组均由十六进位记数表示。

I19	I18	I17	I16	I15	I14	I13	I12	I11	I10	I09	I08	I07	I06	I05	I04	I03	I02	I01	I00
0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
⇩ 4				⇩ 2				⇩ 0				⇩ 0				⇩ 0			

十六进位记数的“42000”表示于屏幕。

●E² PROM变换

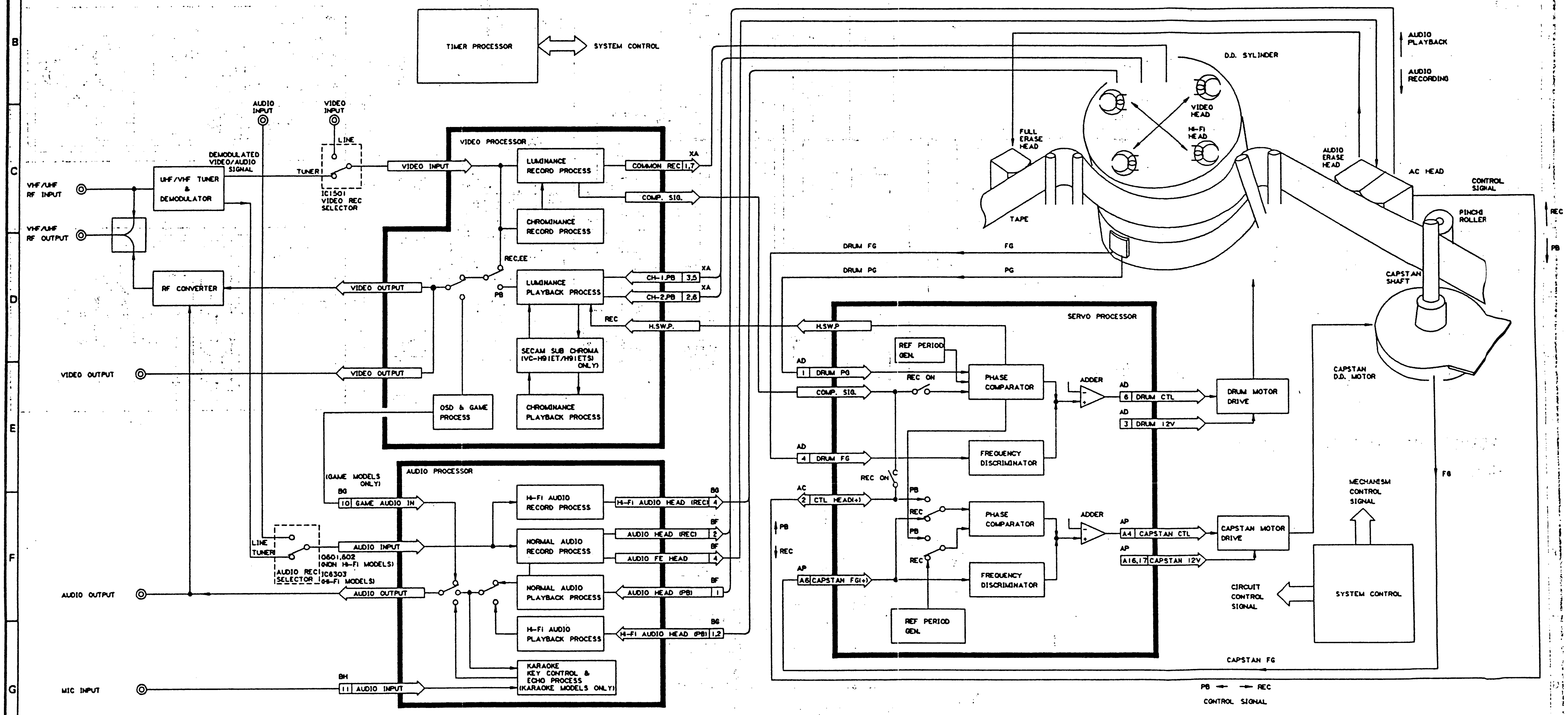
注：“○”：ON “ ”：OFF

号码	功能名称					
I19	——					
I18	——					
I17	O CH					
I16	CHINESE	○			○	
I15	MPX / I²C CTL	○	○		○	○
I14	SIMUL	○	○	○	○	○
I13	SAP					
I12	——					
I11	COLOUR1					
I10	COLOUR0					
I09	KARAOKE MAKER					
I08	ONE SONG PLAY				○	○
I07	APMS				○	○
I06	——				○	○
I05	V BAND					
I04	VCP					
I03	LP/EP	○	○	○	○	○
I02	COLOUR				○	○
I01	Hi-Fi	○	○	○	○	○
I00	VCR					
表示序号		1C00A	0C00A	0400A	1C38E	0C38E
型号		VC-H96	VC-H96ETS	VC-H91 VC-H91ETS	VC-H980	VC-H980ETS

VC-H91/H91ETS
VC-H96/H96ETS
VC-H980/H980ETS

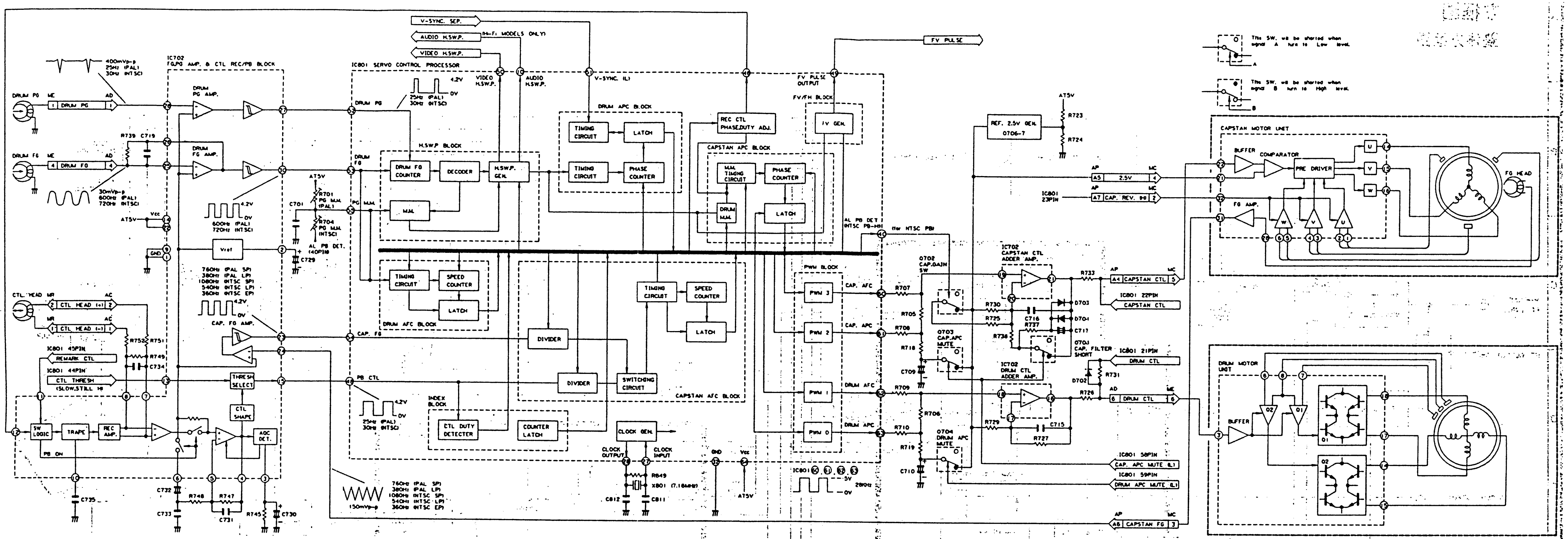
BLOCK DIAGRAM
OVERALL BLOCK DIAGRAM

方框图
整体方框图


TIMER PROCESSOR
SYSTEM CONTROL
AUDIO INPUT
VIDEO INPUT
LINE
TUNER
IC1501 VIDEO REC SELECTOR
DEMODULATED VIDEO/AUDIO SIGNAL
VHF/UHF RF INPUT
VHF/UHF RF OUTPUT
UHF/VHF TUNER & DEMODULATOR
RF CONVERTER
VIDEO PROCESSOR
VIDEO INPUT
LUMINANCE RECORD PROCESS
CHROMINANCE RECORD PROCESS
REC,EE
PB
LUMINANCE PLAYBACK PROCESS
SECAM SUB CHROMA (VC-H91ET/H91ETS) ONLY)
OSD & GAME PROCESS
CHROMINANCE PLAYBACK PROCESS
VIDEO OUTPUT
VIDEO OUTPUT
VIDEO OUTPUT
COMMON REC 1,7
COMP. SIG.
XA
CH-1,PB 3,5
CH-2,PB 2,6
REC
H.SW.P.
(GAME MODELS ONLY)
BG
10 GAME AUDIO IN
AUDIO PROCESSOR
HI-FI AUDIO RECORD PROCESS
NORMAL AUDIO RECORD PROCESS
NORMAL AUDIO PLAYBACK PROCESS
HI-FI AUDIO PLAYBACK PROCESS
KARAOKE KEY CONTROL & ECHO PROCESS (KARAOKE MODELS ONLY)
HI-FI AUDIO HEAD (REC) 4
AUDIO HEAD (REC) 2
AUDIO FE HEAD 4
AUDIO HEAD (PB) 1
HI-FI AUDIO HEAD (PB) 1,2
BF
BG
AUDIO INPUT
AUDIO OUTPUT
AUDIO REC SELECTOR
IC601,602 (NON HI-FI MODELS)
IC6303 (HI-FI MODELS)
AUDIO OUTPUT
MIC INPUT
BH
11 AUDIO INPUT
D.D. SYLINDER
VIDEO HEAD
HI-FI HEAD
FULL ERASE HEAD
TAPE
AUDIO ERASE HEAD
AC HEAD
CONTROL SIGNAL
PINCH ROLLER
CAPSTAN SHAFT
CAPSTAN D.D. MOTOR
AUDIO PLAYBACK
AUDIO RECORDING
REC
PB
DRUM FG
FG
DRUM PG
PG
SERVO PROCESSOR
H.SW.P
REF PERIOD GEN.
AD
1 DRUM PG
REC ON
PHASE COMPARATOR
COMP. SIG.
ADDER
6 DRUM CTL
3 DRUM 12V
DRUM MOTOR DRIVE
4 DRUM FG
FREQUENCY DISCRIMINATOR
AC
2 CTL HEAD(+)
REC ON
PB
REC
PB
REC
PHASE COMPARATOR
ADDER
AP
A4 CAPSTAN CTL
A16,17 CAPSTAN 12V
CAPSTAN MOTOR DRIVE
A6 CAPSTAN FG(+)
FREQUENCY DISCRIMINATOR
REF PERIOD GEN.
FG
MECHANISM CONTROL SIGNAL
CIRCUIT CONTROL SIGNAL
SYSTEM CONTROL
CAPSTAN FG
PB ← → REC
CONTROL SIGNAL
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

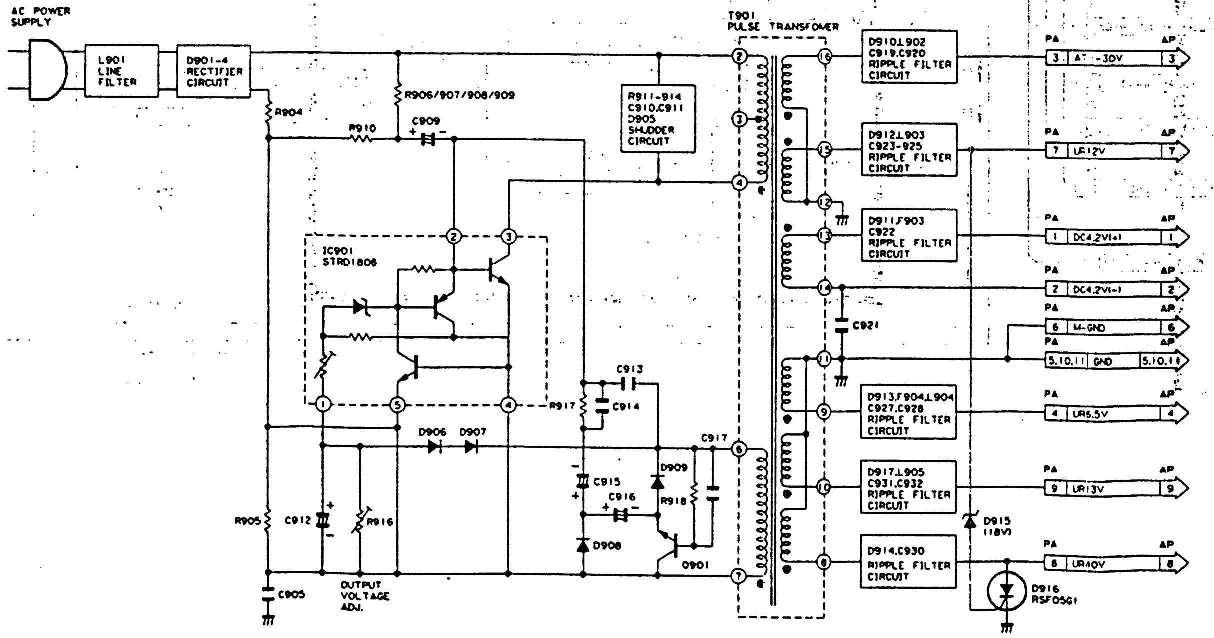
SERVO PROCESS BLOCK DIAGRAM

伺服电路方框图


V-SYNC. SEP.
AUDIO H.SW.P.
Hi-Fi MODELS ONLY
VIDEO H.SW.P.
FV PULSE
IC702 FG,PG AMP. & CTL REC/PB BLOCK
IC801 SERVO CONTROL PROCESSOR
DRUM PG
DRUM FG
DRUM PG AMP.
DRUM FG AMP.
H.SW.P. BLOCK
DRUM FG COUNTER
DECODER
H.SW.P. GEN.
M.M.
DRUM APC BLOCK
TIMING CIRCUIT
LATCH
PHASE COUNTER
REC CTL PHASE,DUTY ADJ.
CAPSTAN APC BLOCK
FV/FH BLOCK
FV GEN.
REF. 2.5V GEN.
CTL HEAD
CTL HEAD (+)
CTL HEAD (-)
CAP. FG AMP.
Vref
THRESH SELECT
CTL SHAPE
SW LOGIC
TRAPE
REC AMP.
AGC DET.
DRUM AFC BLOCK
SPEED COUNTER
DIVIDER
SWITCHING CIRCUIT
CAPSTAN AFC BLOCK
INDEX BLOCK
CTL DUTY DETECTER
COUNTER LATCH
CLOCK GEN.
PWM BLOCK
PWM 3
PWM 2
PWM 1
PWM 0
IC702 CAPSTAN CTL ADDER AMP.
IC702 DRUM CTL ADDER AMP.
CAPSTAN MOTOR UNIT
BUFFER
COMPARATOR
PRE DRIVER
FG AMP.
FG HEAD
DRUM MOTOR UNIT
CAPSTAN CTL
DRUM CTL
CAPSTAN FG
CAP. APC MUTE
DRUM APC MUTE
X801 (7.16MHz)

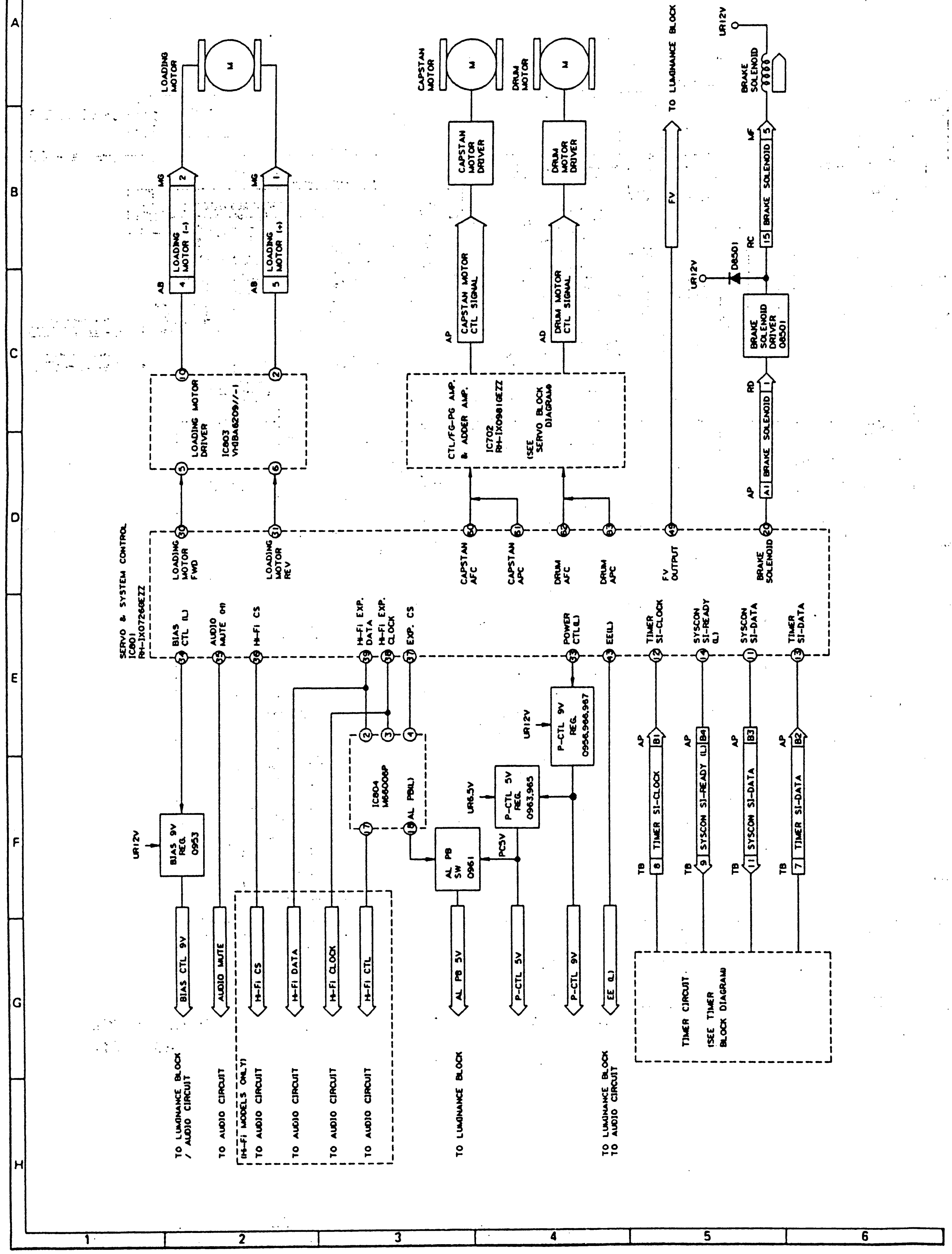
POWER CIRCUIT BLOCK DIAGRAM

电源电路的方框图


AC POWER SUPPLY
L901 LINE FILTER
D901~4 RECTIFIER CIRCUIT
R911~914 C910,C911 D905 SHUDDER CIRCUIT
T901 PULSE TRANSFOMER
IC901 STR01806
D910,L902 C919,C920 RIPPLE FILTER CIRCUIT
D912,L903 C923~925 RIPPLE FILTER CIRCUIT
D911,F903 C922 RIPPLE FILTER CIRCUIT
D913,F904,L904 C927,C928 RIPPLE FILTER CIRCUIT
D917,L905 C931,C932 RIPPLE FILTER CIRCUIT
D914,C930 RIPPLE FILTER CIRCUIT
AT -30V
UR12V
DC4.2V(+)
DC4.2V(-)
M-GND
GND
UR5.5V
UR13V
UR40V
OUTPUT VOLTAGE ADJ.
D916 RSF05G1
D915 (18V)

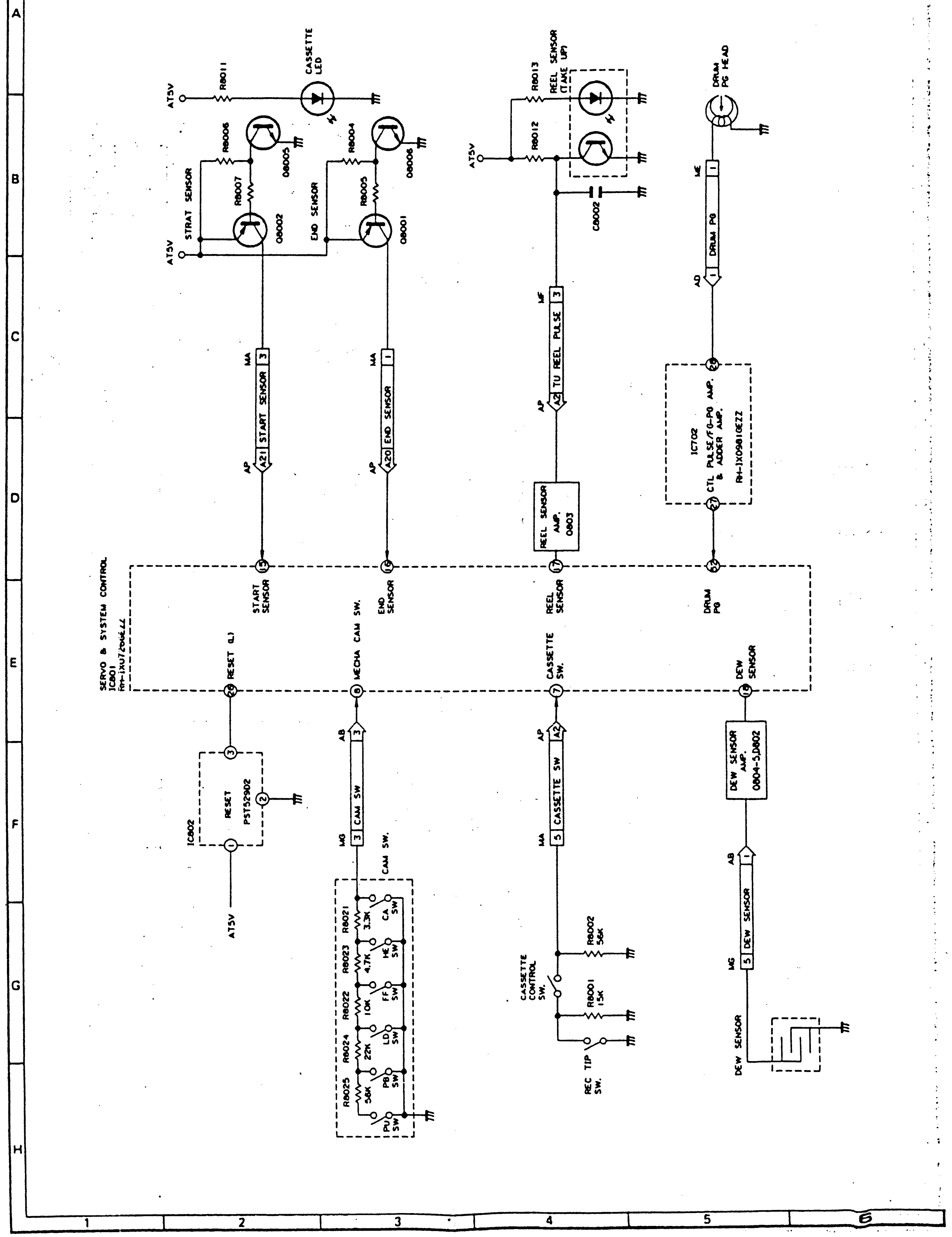
SYSTEM CONTROL BLOCK DIAGRAM

系统控制电路方框图


LOADING MOTOR
M
CAPSTAN MOTOR
DRUM MOTOR
TO LUMINANCE BLOCK
UR12V
BRAKE SOLENOID
MG
LOADING MOTOR (-)
LOADING MOTOR (+)
AB
CAPSTAN MOTOR DRIVER
DRUM MOTOR DRIVER
CAPSTAN MOTOR CTL SIGNAL
DRUM MOTOR CTL SIGNAL
AP
AD
FV
MF
BRAKE SOLENOID
RC
D8501
BRAKE SOLENOID DRIVER Q8501
RD
LOADING MOTOR DRIVER
IC803
VHIBA6209//-1
CTL/FG-PG AMP. & ADDER AMP.
IC702
RH-IX0981GEZZ
(SEE SERVO BLOCK DIAGRAM
SERVO & SYSTEM CONTROL
IC801
RH-IX0726GEZZ
LOADING MOTOR FWD
LOADING MOTOR REV
CAPSTAN AFC
CAPSTAN APC
DRUM AFC
DRUM APC
FV OUTPUT
BRAKE SOLENOID
BIAS CTL (L)
AUDIO MUTE (H)
Hi-Fi CS
Hi-Fi EXP. DATA
Hi-Fi EXP. CLOCK
EXP. CS
POWER CTL(L)
EE(L)
TIMER SI-CLOCK
SYSCON SI-READY (L)
SYSCON SI-DATA
TIMER SI-DATA
IC804
M66006P
AL PB(L)
P-CTL 9V REG. Q956,966,967
P-CTL 5V REG. Q963,965
UR6.5V
PC5V
AL PB SW Q961
BIAS 9V REG. Q953
TB
TIMER SI-CLOCK
SYSCON SI-READY (L)
SYSCON SI-DATA
TIMER SI-DATA
BIAS CTL 9V
AUDIO MUTE
Hi-Fi CS
Hi-Fi DATA
Hi-Fi CLOCK
Hi-Fi CTL
AL PB 5V
P-CTL 5V
P-CTL 9V
EE (L)
TIMER CIRCUIT
(SEE TIMER BLOCK DIAGRAM
TO LUMINANCE BLOCK / AUDIO CIRCUIT
TO AUDIO CIRCUIT
(Hi-Fi MODELS ONLY)
TO AUDIO CIRCUIT
TO AUDIO CIRCUIT
TO AUDIO CIRCUIT
TO AUDIO CIRCUIT
TO LUMINANCE BLOCK
TO LUMINANCE BLOCK
TO AUDIO CIRCUIT
A
B
C
D
E
F
G
H
1
2
3
4
5
6

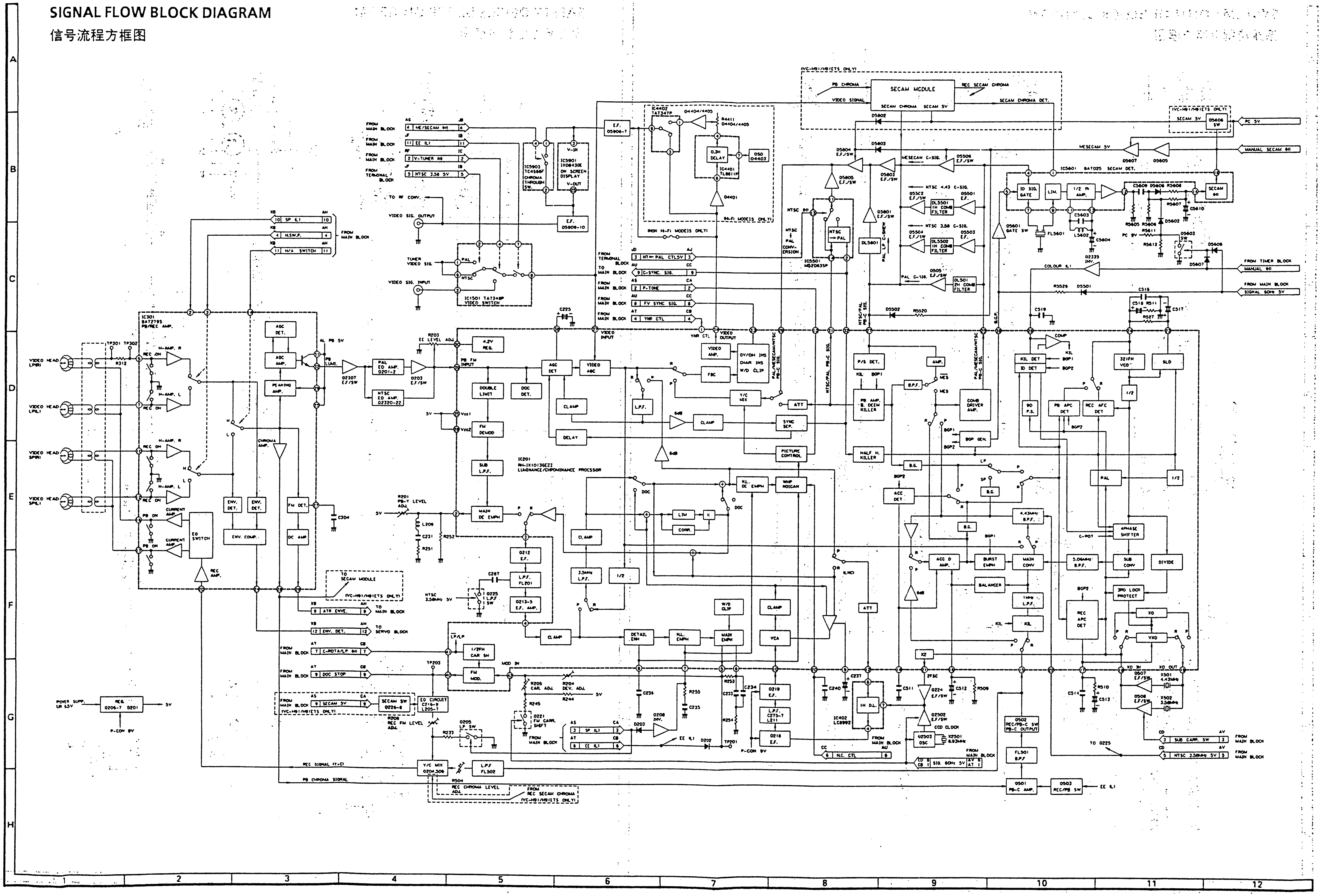
SAFETY DEVICE BLOCK DIAGRAM

安全装置电路方框图


AT5V
R8011
CASSETTE LED
R8006
Q8005
R8004
Q8006
STRAT SENSOR
R8007
Q8002
END SENSOR
R8005
Q8001
REEL SENSOR (TAKE UP)
R8013
R8012
C8002
DRUM PG HEAD
ME
DRUM PG
AD
MA
START SENSOR
END SENSOR
MF
TU REEL PULSE
AP
A21
A20
A2
REEL SENSOR AMP. Q803
IC702
CTL PULSE/FG-PG AMP. & ADDER AMP.
RH-IX0981GEZZ
SERVO & SYSTEM CONTROL
IC801
RH-IX0726GEZZ
START SENSOR
END SENSOR
REEL SENSOR
DRUM PG
RESET (L)
MECHA CAM SW.
CASSETTE SW.
DEW SENSOR
IC802
RESET
PST52902
AT5V
AB
CAM SW
MG
CAM SW.
R8021 3.3K
R8023 4.7K
R8022 10K
R8024 22K
R8025 56K
CA SW
HE SW
FF SW
LD SW
PB SW
PU SW
CASSETTE SW
MA
R8002 56K
CASSETTE CONTROL SW.
R8001 15K
REC TIP SW.
DEW SENSOR AMP. Q804-5,D802
DEW SENSOR
A
B
C
D
E
F
G
H
1
2
3
4
5
6

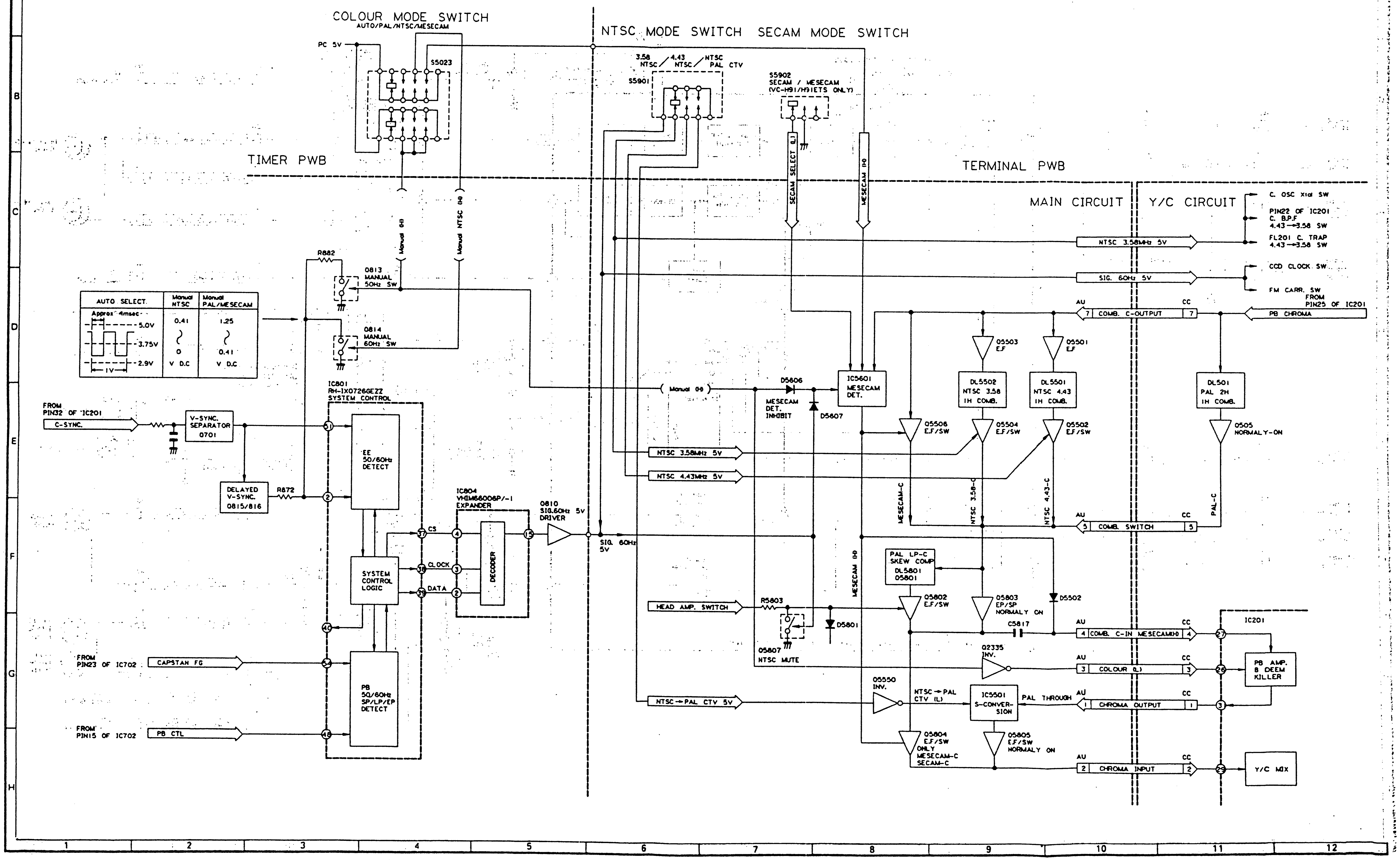
SIGNAL FLOW BLOCK DIAGRAM

信号流程方框图


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
SECAM MODULE
PB CHROMA
VIDEO SIGNAL
REC SECAM CHROMA
SECAM CHROMA DET.
SECAM 5V
IC4402 TA7347P
IC4401 TL8611P
0.3H DELAY
Hi-Fi MODELS ONLY
IC5903 TC4566F CHROMA THROUGH SW.
IC5901 IX0843CE ON SCREEN DISPLAY
IC1501 TA7348P VIDEO SWITCH
VIDEO SIG. OUTPUT
VIDEO SIG. INPUT
TUNER VIDEO SIG.
TO RF CONV.
FROM MAIN BLOCK
FROM TERMINAL BLOCK
IC301 BA7279S PB/REC AMP.
VIDEO HEAD LP(R)
VIDEO HEAD LP(L)
VIDEO HEAD SP(R)
VIDEO HEAD SP(L)
REC ON
PB ON
H-AMP. R
H-AMP. L
CURRENT AMP
EQ SWITCH
REC AMP.
AGC DET.
AGC AMP.
PEAKING AMP.
CHROMA AMP.
ENV. DET.
ENV. COMP.
FM DET.
DC AMP
PAL EQ AMP. Q201-2
NTSC EQ AMP. Q232Q-22
4.2V REG.
PB FM INPUT
DOUBLE LIMIT
DOC DET.
FM DEMOD
SUB L.P.F.
MAIN DE EMPH
IC201 RH-IX1013GEZZ LUMINANCE/CHROMINANCE PROCESSOR
AGC DET
VIDEO AGC
CLAMP
DELAY
SYNC SEP.
PICTURE CONTROL
Y/C MIX
VIDEO AMP.
FBC
OV/OH INS CHAR INS W/D CLIP
N.L. DE EMPH
WHP NOICAN
LIM
CONR.
DETAIL ENH
N.L. EMPH
MAIN EMPH
W/D CLIP
VCA
ATT
1/2FH CAR SH
FM MOD.
IC5501 M52063SP
NTSC →PAL
DL5801
DL5501 1H COMB FILTER
DL5502 1H COMB FILTER
DL501 2H COMB FILTER
IC5601 BA7025 SECAM DET.
ID SIG. GATE
LIM.
1/2 m AMP.
SECAM 6H
FL5601
P/S DET.
PB AMP. B. DEEM KILLER
HALF H. KILLER
COMB DRIVER AMP.
BGP GEN.
ACC DET.
B.G.
ACC D AMP.
BURST EMPH
MAIN CONV
BALANCER
4.43MHz B.P.F.
1MHz L.P.F.
KIL
KIL DET
ID DET
PB APC DET
REC AFC DET
321FH VCO
SLD
PAL
1/2
4PHASE SHIFTER
5.06MHz B.P.F.
SUB CONV
DIVIDE
3RD LOCK PROTECT
REC APC DET
XO
VXO
X2
IC402 LC8992
1H D.L.
Q2503 OSC
X2501 8.83MHz
X501 4.43MHz
X502 3.58MHz
Q502 REC/PB-C SW PB-C OUTPUT
FL501 BPF
Q501 PB-C AMP.
Q503 REC/PB SW
Y/C MIX Q204,Q206
LPF FL502
REC CHROMA LEVEL ADJ.
FROM REC SECAM CHROMA (VC-H91/H91ETS ONLY)
REC SIGNAL (Y+C)
PB CHROMA SIGNAL
POWER SUPP. UR 5.5V
REG. Q206-7 D201
P-CON 9V
TO SECAM MODULE (VC-H91/H91ETS ONLY)
TO MAIN BLOCK
TO SERVO BLOCK
FROM TIMER BLOCK
MANUAL SECAM 6H
PC 5V
COLOUR ILL
SIGNAL 60Hz 5V
TO Q225

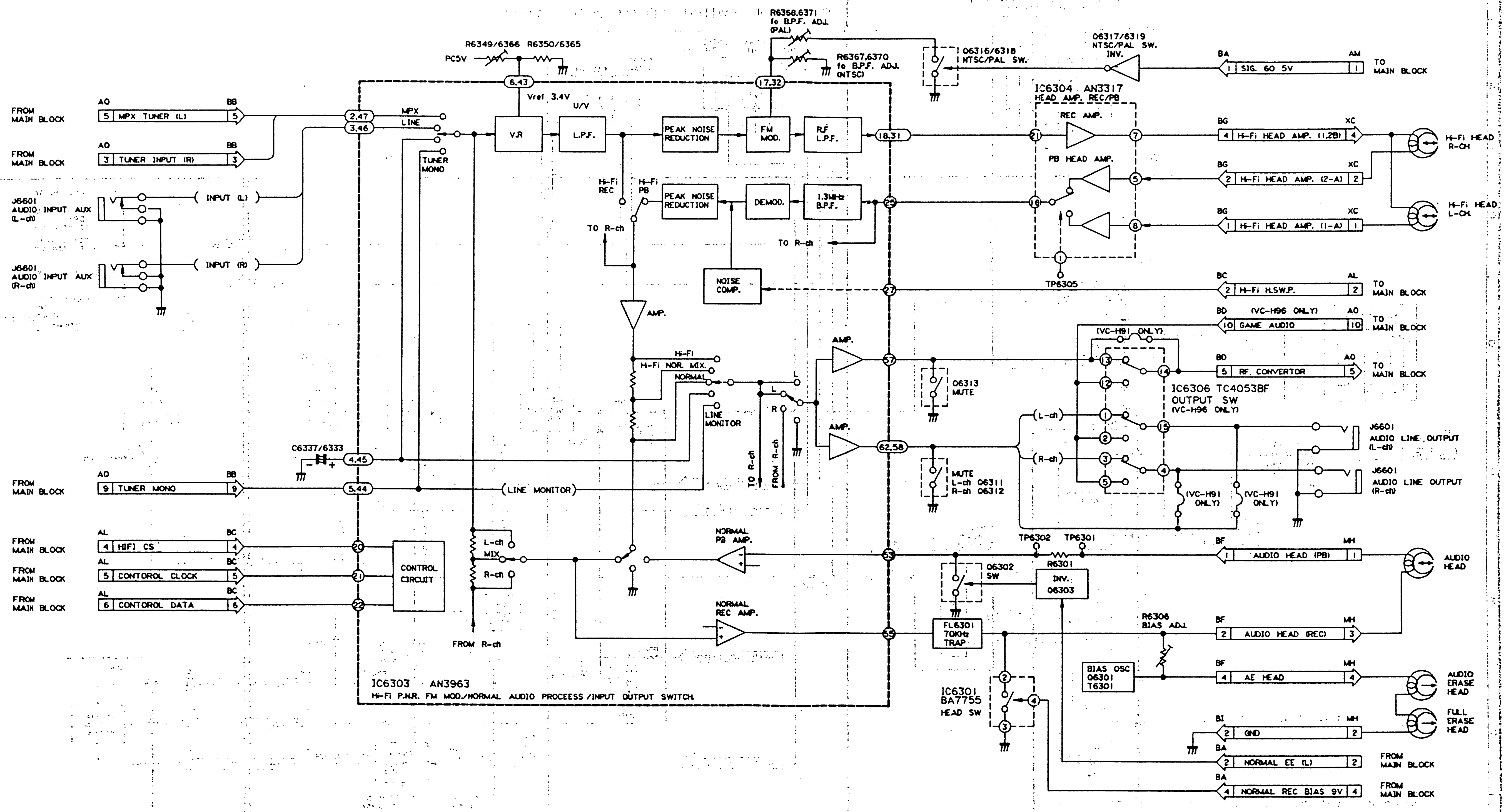
SYSTEM SELECTION (AUTO/MANUAL) BLOCK DIAGRAM

制式选择(自动/手动)电路方框图


COLOUR MODE SWITCH
AUTO/PAL/NTSC/MESECAM
PC 5V
S5023
TIMER PWB
NTSC MODE SWITCH
SECAM MODE SWITCH
3.58 NTSC / 4.43 NTSC / NTSC PAL CTV
S5901
S5902
SECAM / MESECAM
(VC-H91/H91ETS ONLY)
SECAM SELECT (L)
MESECAM (H)
TERMINAL PWB
MAIN CIRCUIT
Y/C CIRCUIT
C. OSC Xtal SW
PIN22 OF IC201
C. B.P.F
4.43→3.58 SW
FL201 C. TRAP
4.43→3.58 SW
CCD CLOCK SW
FM CARR. SW
FROM
PIN25 OF IC201
PB CHROMA
NTSC 3.58MHz 5V
SIG. 60Hz 5V
AU
CC
7 COMB. C-OUTPUT 7
Manual (H)
Manual NTSC (H)
R882
Q813
MANUAL
50Hz SW
Q814
MANUAL
60Hz SW
AUTO SELECT.
Approx 4msec
5.0V
3.75V
2.9V
1V
Manual NTSC
0.41 ~ 0 V D.C
Manual PAL/MESECAM
1.25 ~ 0.41 V D.C
IC801
RH-IX0726GEZZ
SYSTEM CONTROL
FROM
PIN32 OF IC201
C-SYNC.
V-SYNC. SEPARATOR
Q701
DELAYED V-SYNC.
Q815/816
R872
EE
50/60Hz
DETECT
SYSTEM CONTROL LOGIC
PB
50/60Hz
SP/LP/EP
DETECT
51
2
37
38
39
40
54
48
CS
CLOCK
DATA
IC804
VHIM66006P/-1
EXPANDER
DECODER
4
3
2
15
Q810
SIG.60Hz 5V
DRIVER
SIG. 60Hz
5V
FROM
PIN23 OF IC702
CAPSTAN FG
FROM
PIN15 OF IC702
PB CTL
Manual (H)
D5806
D5607
MESECAM
DET.
INHIBIT
IC5601
MESECAM
DET.
Q5503
E.F
Q5501
E.F
DL5502
NTSC 3.58
1H COMB.
DL5501
NTSC 4.43
1H COMB.
DL501
PAL 2H
1H COMB.
Q5506
E.F/SW
Q5504
E.F/SW
Q5502
E.F/SW
Q505
NORMALY-ON
NTSC 3.58MHz 5V
NTSC 4.43MHz 5V
MESECAM-C
NTSC 3.58-C
NTSC 4.43-C
PAL-C
5 COMB. SWITCH 5
MESECAM (H)
PAL LP-C
SKEW COMP
DL5801
Q5801
HEAD AMP. SWITCH
R5803
D5801
Q5807
NTSC MUTE
Q5802
E.F/SW
Q5803
EP/SP
NORMALY ON
D5502
C5817
4 COMB. C-IN MESECAM(H) 4
Q2335
INV.
3 COLOUR (L) 3
IC201
27
26
3
25
PB AMP.
B DEEM
KILLER
Q5550
INV.
NTSC→PAL CTV 5V
NTSC→PAL
CTV (L)
IC5501
S-CONVER-
SION
PAL THROUGH
1 CHROMA OUTPUT 1
Q5804
E.F/SW
ONLY
MESECAM-C
SECAM-C
Q5805
E.F/SW
NORMALY ON
2 CHROMA INPUT 2
Y/C MIX
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

Hi-Fi AUDIO BLOCK DIAGRAM (Except VC-H980/VC-H980ETS)

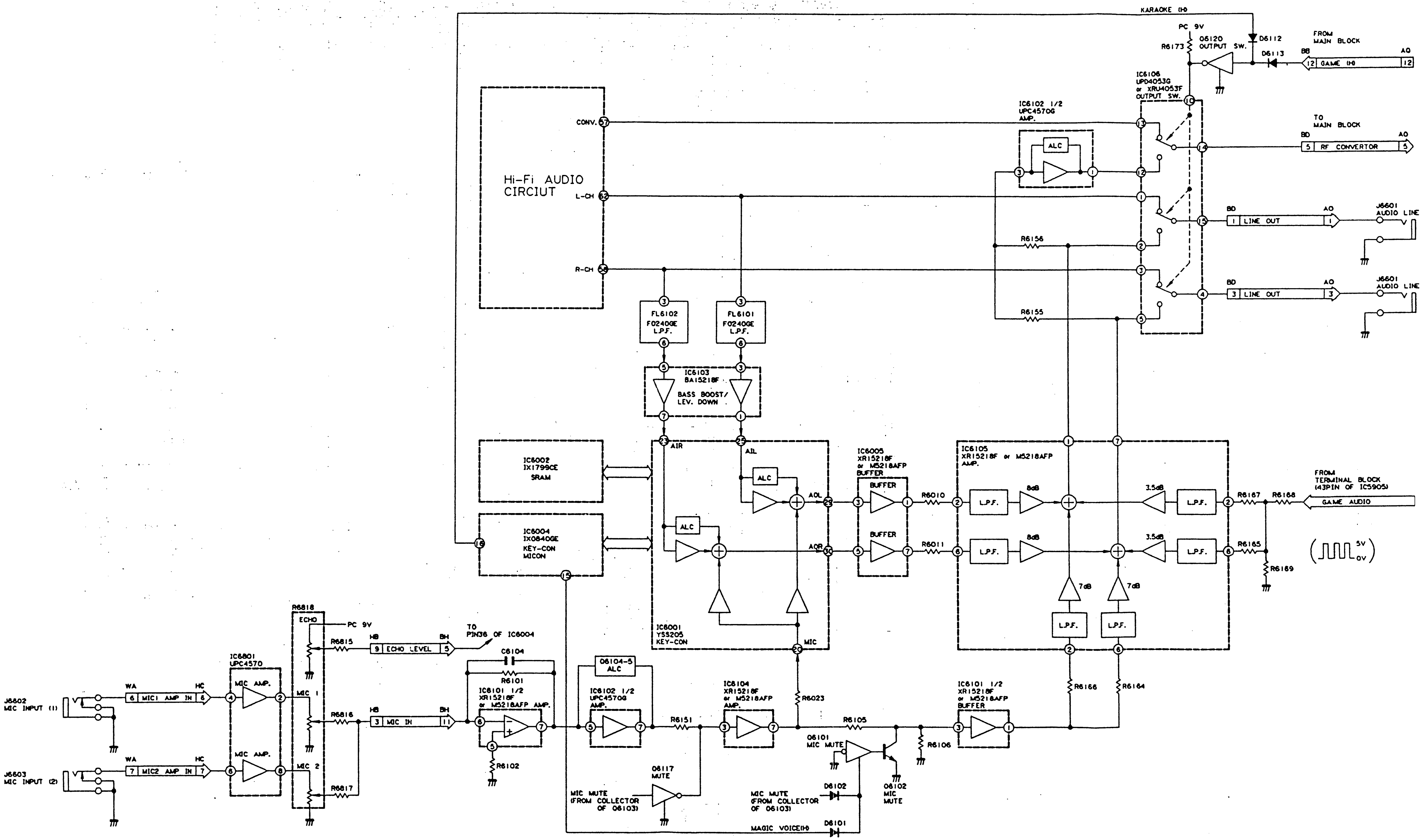
Hi-Fi(高保真度)音频装置电路方框图 (VC-H980/VC-H980ETS除外)


FROM MAIN BLOCK
AO
5 MPX TUNER (L) 5
BB
FROM MAIN BLOCK
AO
3 TUNER INPUT (R) 3
BB
J6601 AUDIO INPUT AUX (L-ch)
INPUT (L)
J6601 AUDIO INPUT AUX (R-ch)
INPUT (R)
FROM MAIN BLOCK
AO
9 TUNER MONO 9
BB
FROM MAIN BLOCK
AL
4 HIFI CS 4
BC
FROM MAIN BLOCK
AL
5 CONTOROL CLOCK 5
BC
FROM MAIN BLOCK
AL
6 CONTOROL DATA 6
BC
R6349/6366 R6350/6365
PC5V
6.43
Vref 3.4V
U/V
2.47
3.46
MPX
LINE
TUNER MONO
V.R
L.P.F.
PEAK NOISE REDUCTION
FM MOD.
RF L.P.F.
18.31
R6368,6371 fo B.P.F. ADJ. (PAL)
R6367,6370 fo B.P.F. ADJ. (NTSC)
17.32
Hi-Fi REC
Hi-Fi PB
PEAK NOISE REDUCTION
DEMOD.
1.3MHz B.P.F.
25
TO R-ch
TO R-ch
NOISE COMP.
27
AMP.
Hi-Fi
Hi-Fi NOR. MIX.
NORMAL
LINE MONITOR
L
L
R
TO R-ch
FROM R-ch
AMP.
57
AMP.
62.58
C6337/6333
4.45
5.44
LINE MONITOR
20
21
22
CONTROL CIRCUIT
L-ch
MIX
R-ch
FROM R-ch
NORMAL PB AMP.
53
NORMAL REC AMP.
55
IC6303 AN3963
Hi-Fi P.N.R. FM MOD./NORMAL AUDIO PROCEESS/INPUT OUTPUT SWITCH.
06316/6318 NTSC/PAL SW.
06317/6319 NTSC/PAL SW. INV.
BA
1 SIG. 60 5V 1
AM
TO MAIN BLOCK
IC6304 AN3317
HEAD AMP. REC/PB
REC AMP.
PB HEAD AMP.
21
7
16
5
8
1
TP6305
BG
4 Hi-Fi HEAD AMP. (1.2B) 4
XC
BG
2 Hi-Fi HEAD AMP. (2-A) 2
XC
BG
1 Hi-Fi HEAD AMP. (1-A) 1
XC
Hi-Fi HEAD R-CH
Hi-Fi HEAD L-CH.
BC
2 Hi-Fi H.SW.P. 2
AL
TO MAIN BLOCK
BD (VC-H96 ONLY) AO
10 GAME AUDIO 10
TO MAIN BLOCK
(VC-H91 ONLY)
BD
5 RF CONVERTOR 5
AO
TO MAIN BLOCK
06313 MUTE
MUTE L-ch 06311 R-ch 06312
IC6306 TC4053BF
OUTPUT SW
(VC-H96 ONLY)
13
12
14
(L-ch)
1
2
15
(R-ch)
3
4
5
(VC-H91 ONLY)
(VC-H91 ONLY)
J6601 AUDIO LINE OUTPUT (L-ch)
J6601 AUDIO LINE OUTPUT (R-ch)
TP6302 TP6301
R6301
06302 SW
INV. 06303
BF
1 AUDIO HEAD (PB) 1
MH
AUDIO HEAD
FL6301 70KHz TRAP
R6306 BIAS ADJ.
BF
2 AUDIO HEAD (REC) 3
MH
BIAS OSC 06301 T6301
BF
4 AE HEAD 4
MH
AUDIO ERASE HEAD
FULL ERASE HEAD
IC6301 BA7755
HEAD SW
2
4
3
BI
2 GND 2
MH
BA
2 NORMAL EE (L) 2
FROM MAIN BLOCK
BA
4 NORMAL REC BIAS 9V 4
FROM MAIN BLOCK
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

VC-H91/H91ETS
VC-H96/H96ETS
VC-H980/H980ETS

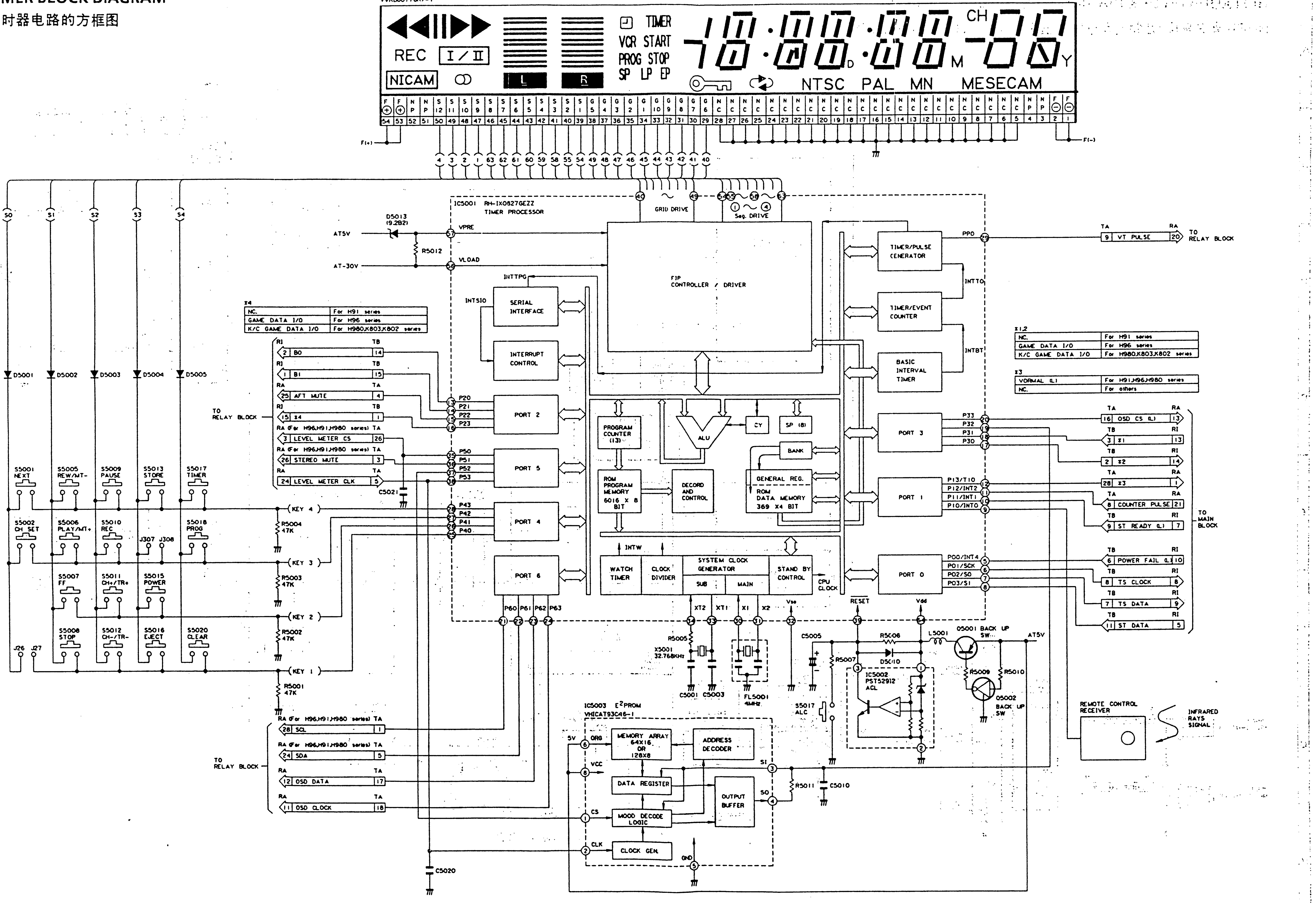
Hi-Fi AUDIO BLOCK DIAGRAM (VC-H980/VC-H980ETS)

Hi-Fi(高保真度)音频装置电路方框图(VC-H980/VC-H980ETS)


KARAOKE (H)
PC 9V
R6173
06120
OUTPUT SW.
D6112
D6113
FROM
MAIN BLOCK
BB
AO
12 GAME (H) 12
IC6106
UPD4053G
or XRU4053F
OUTPUT SW.
TO
MAIN BLOCK
BD
AO
5 RF CONVERTOR 5
IC6102 1/2
UPC4570G
AMP.
ALC
Hi-Fi AUDIO
CIRCIUT
CONV.
L-CH
R-CH
R6156
R6155
BD
AO
1 LINE OUT 1
J6601
AUDIO LINE OUT(L)
BD
AO
3 LINE OUT 3
J6601
AUDIO LINE OUT(R)
FL6102
F0240GE
L.P.F.
FL6101
F0240GE
L.P.F.
IC6103
BA15218F
BASS BOOST/
LEV. DOWN
IC6002
IX1799CE
SRAM
IC6004
IX0840GE
KEY-CON
MICON
AIR
AIL
ALC
AOL
AOR
MIC
IC6001
YSS205
KEY-CON
IC6005
XR15218F
or M5218AFP
BUFFER
BUFFER
BUFFER
R6010
R6011
IC6105
XR15218F or M5218AFP
AMP.
L.P.F.
8dB
3.5dB
7dB
FROM
TERMINAL BLOCK
(43PIN OF IC5905)
R6167
R6168
GAME AUDIO
R6165
R6169
5V
0V
R6166
R6164
R6818
ECHO
PC 9V
R6815
HB
BH
9 ECHO LEVEL 5
TO
PIN36 OF IC6004
C6104
R6101
IC6801
UPC4570
WA
HC
6 MIC1 AMP IN 6
MIC AMP.
MIC 1
J6602
MIC INPUT (1)
R6816
HB
BH
3 MIC IN 11
IC6101 1/2
XR15218F
or M5218AFP AMP.
R6102
WA
HC
7 MIC2 AMP IN 7
MIC AMP.
MIC 2
J6603
MIC INPUT (2)
R6817
06104-5
ALC
IC6102 1/2
UPC4570G
AMP.
R6151
IC6104
XR15218F
or M5218AFP
AMP.
R6023
R6105
06101
MIC MUTE
R6106
IC6101 1/2
XR15218F
or M5218AFP
BUFFER
06117
MUTE
MIC MUTE
(FROM COLLECTOR
OF 06103)
D6102
MIC MUTE
(FROM COLLECTOR
OF 06103)
06102
MIC
MUTE
MAGIC VOICE(H)
D6101

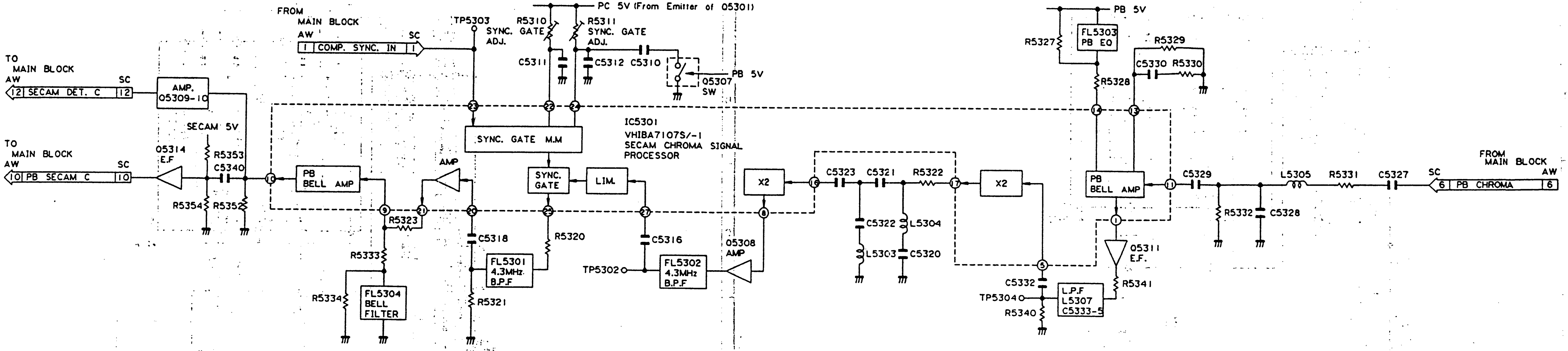
TIMER BLOCK DIAGRAM

定时器电路的方框图


DG5001
VVKBJ0770K/-1
REC
I / II
NICAM
L
R
TIMER
VCR START
PROG STOP
SP LP EP
CH
D
M
Y
NTSC PAL MN MESECAM
F(+)
F(-)
IC5001 RH-IX0827GEZZ
TIMER PROCESSOR
GRID DRIVE
Seg. DRIVE
D5013 (9.2B2)
AT5V
R5012
AT-30V
VPRE
VLOAD
INTTPG
INTSIO
SERIAL INTERFACE
INTERRUPT CONTROL
FIP CONTROLLER / DRIVER
PORT 2
PORT 5
PORT 4
PORT 6
P20
P21
P22
P23
P50
P51
P52
P53
P43
P42
P41
P40
P60 P61 P62 P63
PROGRAM COUNTER (13)
ALU
CY
SP (8)
BANK
GENERAL REG.
ROM PROGRAM MEMORY 6016 X 8 BIT
DECORD AND CONTROL
ROM DATA MEMORY 369 X4 BIT
INTW
WATCH TIMER
CLOCK DIVIDER
SYSTEM CLOCK GENERATOR
SUB
MAIN
STAND BY CONTROL
CPU CLOCK
XT2 XT1 X1 X2
Vss
RESET
Vdd
TIMER/PULSE GENERATOR
TIMER/EVENT COUNTER
BASIC INTERVAL TIMER
INTT0
INTBT
PORT 3
PORT 1
PORT 0
PP0
P33
P32
P31
P30
P13/TI0
P12/INT2
P11/INT1
P10/INT0
P00/INT4
P01/SCK
P02/SO
P03/SI
TA
RA
VT PULSE
TO RELAY BLOCK
OSD CS (L)
*1
*2
*3
COUNTER PULSE
ST READY (L)
TO MAIN BLOCK
POWER FAIL (L)
TS CLOCK
TS DATA
ST DATA
TB
RI
*1,2
NC.
GAME DATA I/O
K/C GAME DATA I/O
For H91 series
For H96 series
For H980,X803,X802 series
*3
NORMAL (L)
For H91,H96,H980 series
For others
*4
B0
B1
AFT MUTE
*4
LEVEL METER CS
STEREO MUTE
LEVEL METER CLK
RA (For H96,H91,H980 series) TA
C5021
S0 S1 S2 S3 S4
D5001 D5002 D5003 D5004 D5005
S5001 NEXT
S5005 REW/MT-
S5009 PAUSE
S5013 STORE
S5017 TIMER
S5002 CH SET
S5006 PLAY/MT+
S5010 REC
J307 J308
S5018 PROG
S5007 FF
S5011 CH+/TR+
S5015 POWER
S5008 STOP
S5012 CH-/TR-
S5016 EJECT
S5020 CLEAR
J26 J27
KEY 4
KEY 3
KEY 2
KEY 1
R5004 47K
R5003 47K
R5002 47K
R5001 47K
SCL
SDA
OSD DATA
OSD CLOCK
C5020
R5005
X5001 32.768KHz
C5001 C5003
FL5001 4MHz
C5005
R5006
D5010
R5007
L5001
Q5001 BACK UP SW
AT5V
IC5002 PST52912 ACL
R5009
R5010
Q5002 BACK UP SW
S5017 ALC
IC5003 E²PROM
VHICAT93C46-1
5V
ORG
VCC
CS
CLK
GND
MEMORY ARRAY 64X16 OR 128X8
ADDRESS DECODER
DATA REGISTER
MOOD DECODE LOGIC
CLOCK GEN.
OUTPUT BUFFER
SI
SO
R5011
C5010
REMOTE CONTROL RECEIVER
INFRARED RAYS SIGNAL
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12

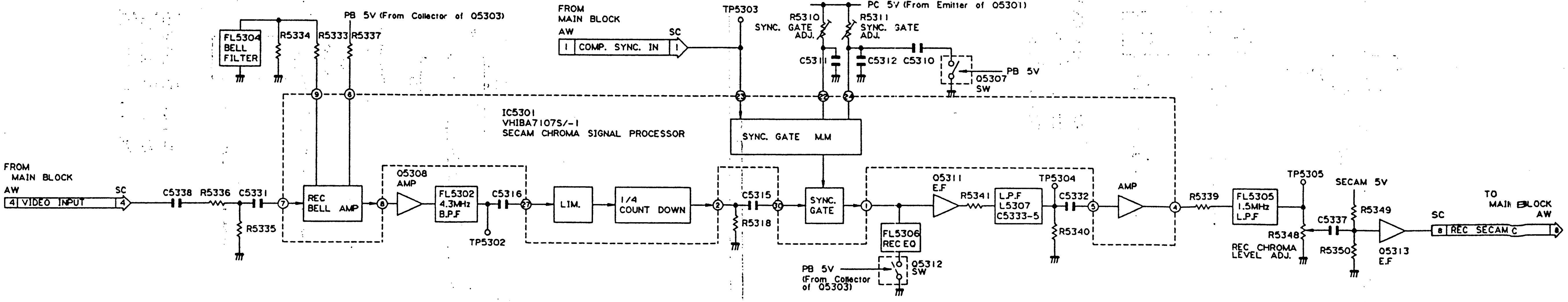
PLAYBACK SECAM CHROMINANCE BLOCK DIAGRAM (VC-H91/VC-H91ETS)

再现SECAM制式色度信号电路方框图 (VC-H91/VC-H91ETS)


FROM MAIN BLOCK
AW
SC
1 COMP. SYNC. IN 1
TP5303
R5310 SYNC. GATE ADJ.
R5311 SYNC. GATE ADJ.
PC 5V (From Emitter of Q5301)
C5311
C5312
C5310
Q5307 SW
PB 5V
TO MAIN BLOCK
AW
SC
12 SECAM DET. C 12
AMP. Q5309-10
SECAM 5V
TO MAIN BLOCK
AW
SC
10 PB SECAM C 10
Q5314 E.F
R5353
C5340
R5354
R5352
PB BELL AMP
AMP
SYNC. GATE M.M
SYNC. GATE
LIM.
IC5301
VHIBA7107S/-1
SECAM CHROMA SIGNAL PROCESSOR
X2
R5323
R5333
R5334
FL5304 BELL FILTER
C5318
FL5301 4.3MHz B.P.F
R5321
R5320
C5316
TP5302
FL5302 4.3MHz B.P.F
Q5308 AMP
C5323
C5321
R5322
C5322
L5304
L5303
C5320
X2
PB 5V
R5327
FL5303 PB EQ
R5329
C5330
R5330
R5328
PB BELL AMP
C5329
L5305
R5331
C5327
FROM MAIN BLOCK
AW
SC
6 PB CHROMA 6
R5332
C5328
Q5311 E.F
R5341
C5332
TP5304
R5340
L.P.F L5307 C5333-5

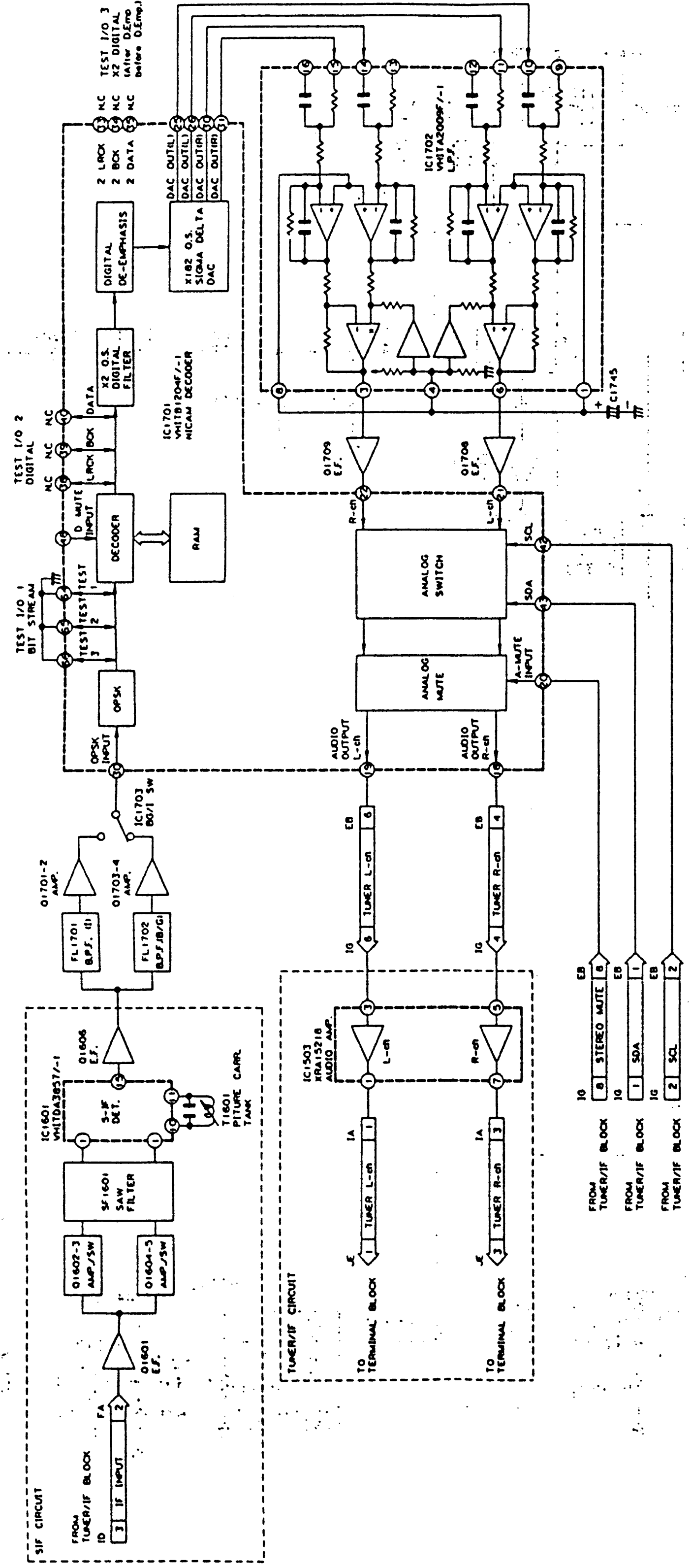
RECORDING SECAM CHROMINANCE BLOCK DIAGRAM (VC-H91/VC-H91ETS)

记录SECAM制式色度信号电路方框图 (VC-H91/VC-H91ETS)


PB 5V (From Collector of Q5303)
FL5304 BELL FILTER
R5334
R5333
R5337
FROM MAIN BLOCK
AW
SC
1 COMP. SYNC. IN 1
TP5303
R5310 SYNC. GATE ADJ.
R5311 SYNC. GATE ADJ.
PC 5V (From Emitter of Q5301)
C5311
C5312
C5310
PB 5V
Q5307 SW
IC5301
VHIBA7107S/-1
SECAM CHROMA SIGNAL PROCESSOR
SYNC. GATE M.M
FROM MAIN BLOCK
AW
SC
4 VIDEO INPUT 4
C5338
R5336
C5331
R5335
REC BELL AMP
Q5308 AMP
FL5302 4.3MHz B.P.F
C5316
TP5302
LIM.
1/4 COUNT DOWN
C5315
R5318
SYNC. GATE
FL5306 REC EQ
PB 5V (From Collector of Q5303)
Q5312 SW
Q5311 E.F
R5341
L.P.F L5307 C5333-5
TP5304
C5332
R5340
AMP
R5339
FL5305 1.5MHz L.P.F
TP5305
C5337
R5348
REC CHROMA LEVEL ADJ.
SECAM 5V
R5349
R5350
Q5313 E.F
TO MAIN BLOCK
AW
SC
8 REC SECAM C 8

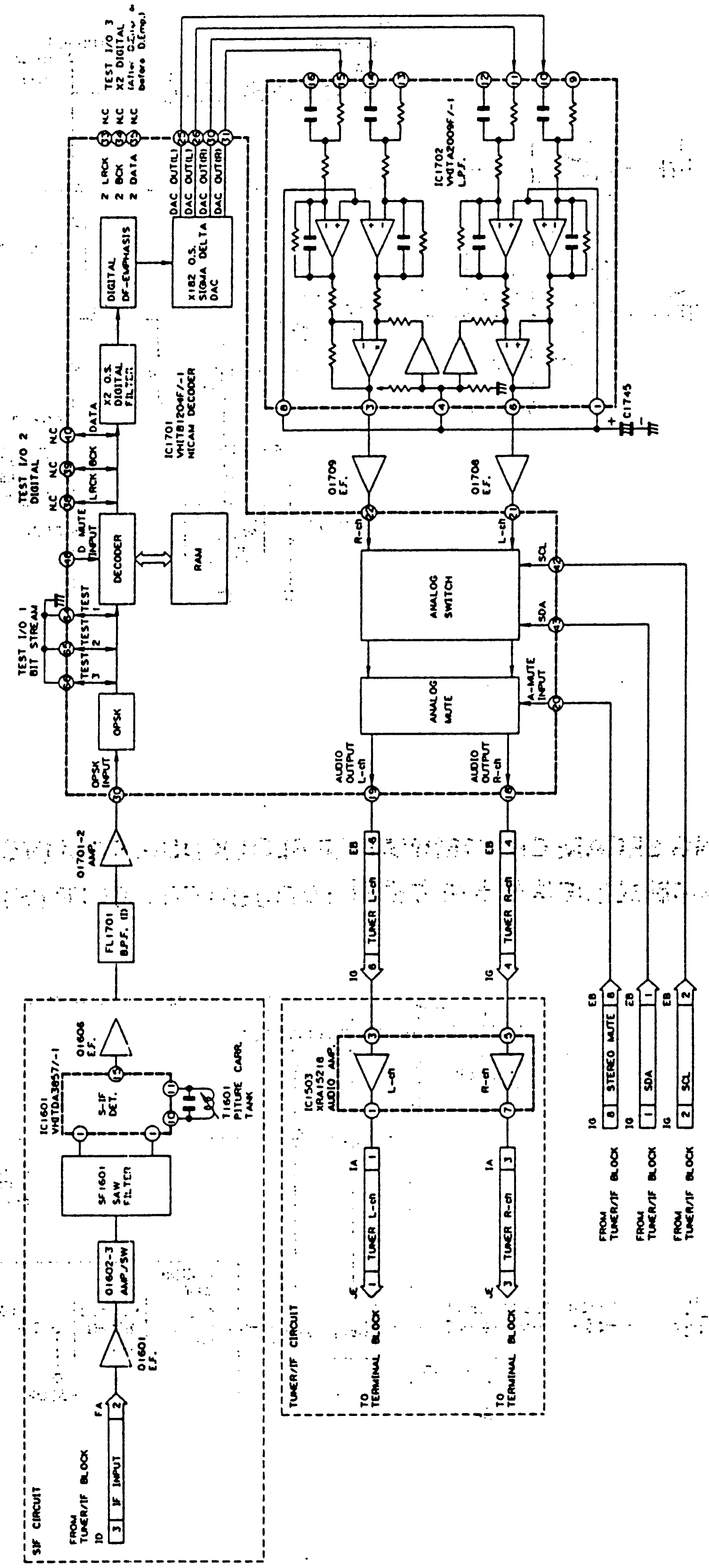
NICAM CIRCUIT BLOCK DIAGRAM (VC-H96/VC-H96ETS)

NICAM电路方框图


TEST I/O 3
X2 DIGITAL
DAC OUT(L)
DAC OUT(R)
2 LRCK
2 BCK
2 DATA
DIGITAL DE-EMPHASIS
X182 O.S. SIGMA DELTA DAC
X2 O.S. DIGITAL FILTER
IC1701 NICAM DECODER
IC1702 L.P.F.
C1745
DECODER
RAM
QPSK
QPSK INPUT
TEST I/O 1 BIT STREAM
TEST I/O 2 DIGITAL
D MUTE INPUT
Q1709 E.F.
Q1708 E.F.
R-ch
L-ch
ANALOG SWITCH
ANALOG MUTE
A-MUTE INPUT
SCL
SDA
AUDIO OUTPUT L-ch
AUDIO OUTPUT R-ch
IC1703 BO/I SW
Q1701-2 AMP.
Q1703-4 AMP.
FL1701 B.P.F. (I)
FL1702 B.P.F. (B/G)
Q1606 E.F.
IC1601
S-IF DET.
T1601 PICTURE CARR. TANK
SF1601 SAW FILTER
Q1602-3 AMP/SW
Q1604-5 AMP/SW
Q1601 E.F.
SIF CIRCUIT
FROM TUNER/IF BLOCK
IF INPUT
IC1503 AUDIO AMP.
TUNER L-ch
TUNER R-ch
TO TERMINAL BLOCK
TUNER/IF CIRCUIT
STEREO MUTE
FROM TUNER/IF BLOCK

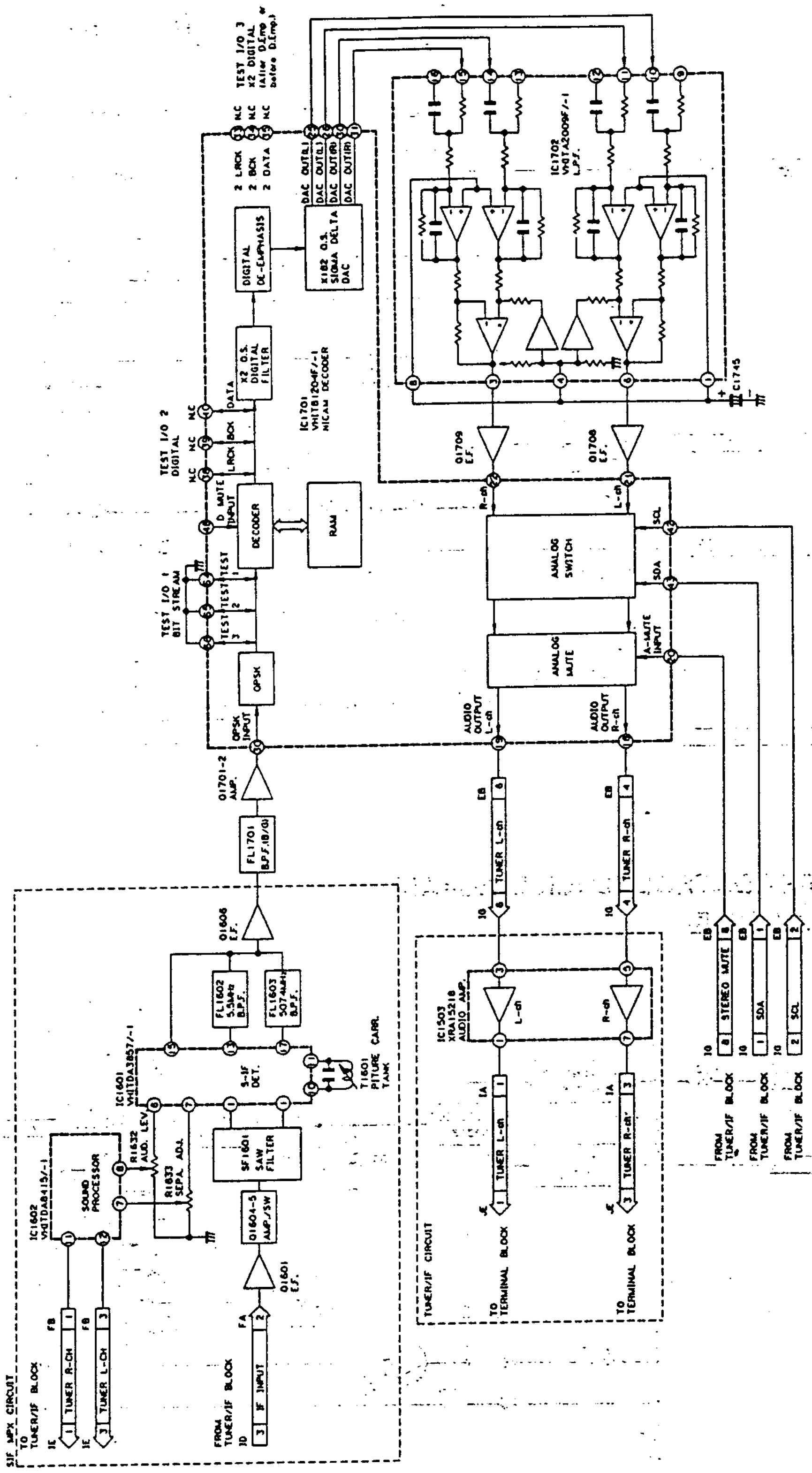
NICAM CIRCUIT BLOCK DIAGRAM (VC-H980)

NICAM电路方框图（VC-H980）


TEST I/O 3
X2 DIGITAL
DAC OUT(L)
DAC OUT(R)
2 LRCK
2 BCK
2 DATA
DIGITAL DE-EMPHASIS
X182 O.S. SIGMA DELTA DAC
X2 O.S. DIGITAL FILTER
IC1701 NICAM DECODER
IC1702 L.P.F.
C1745
DECODER
RAM
QPSK
QPSK INPUT
TEST I/O 1 BIT STREAM
TEST I/O 2 DIGITAL
D MUTE INPUT
Q1709 E.F.
Q1708 E.F.
R-ch
L-ch
ANALOG SWITCH
ANALOG MUTE
A-MUTE INPUT
SCL
SDA
AUDIO OUTPUT L-ch
AUDIO OUTPUT R-ch
Q1701-2 AMP.
FL1701 B.P.F. (I)
Q1606 E.F.
IC1601
S-IF DET.
T1601 PICTURE CARR. TANK
SF1601 SAW FILTER
Q1602-3 AMP/SW
Q1601 E.F.
SIF CIRCUIT
FROM TUNER/IF BLOCK
IF INPUT
IC1503 AUDIO AMP.
TUNER L-ch
TUNER R-ch
TO TERMINAL BLOCK
TUNER/IF CIRCUIT
STEREO MUTE
FROM TUNER/IF BLOCK

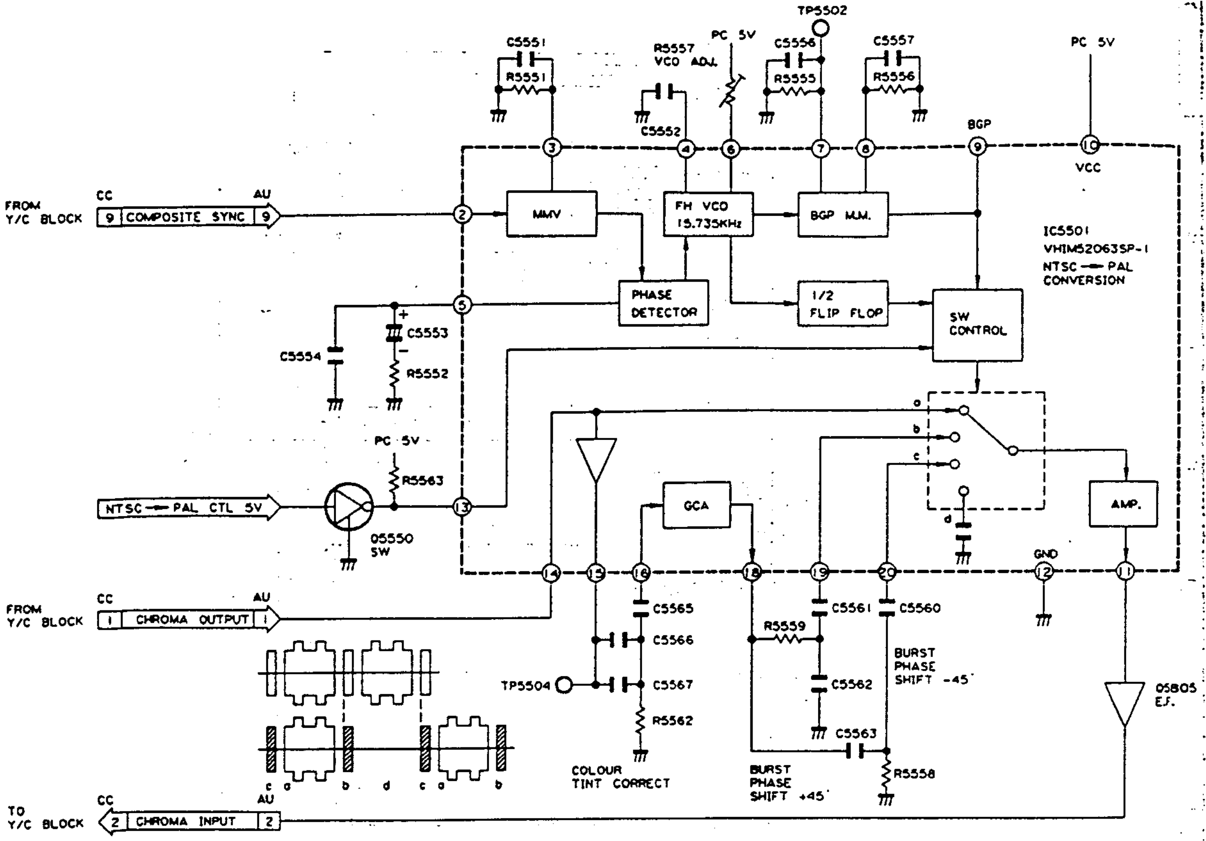
NICAM CIRCUIT BLOCK DIAGRAM (VC-H980ETS)

NICAM电路方框图（VC-H980ETS）


SIF MPX CIRCUIT
TO TUNER/IF BLOCK
TUNER R-CH
TUNER L-CH
FROM TUNER/IF BLOCK
IF INPUT
IC1602 VHiTDA8415/-1
SOUND PROCESSOR
R1632 AUD. LEV.
R1633 SEPA. ADJ.
IC1601 VHiTDA3857/-1
S-IF DET.
SF1601 SAW FILTER
Q1604-5 AMP./SW
Q1601 E.F.
FL1602 5.5MHz B.P.F.
FL1603 B.P.F.
T1601 PICTURE CARR. TANK
Q1606 E.F.
FL1701 B.P.F.
Q1701-2 AMP.
QPSK INPUT
QPSK
TEST I/O 1 BIT STREAM
TEST I/O 2 DIGITAL
D MUTE INPUT
DECODER
RAM
LRCK
BCK
DATA
X2 O.S. DIGITAL FILTER
DIGITAL DE-EMPHASIS
X182 O.S. SIGMA DELTA DAC
IC1701 VHiTB1204F/-1 NICAM DECODER
DAC OUT(L)
DAC OUT(R)
TEST I/O 3 X2 DIGITAL
N.C
IC1702 VHiTA2009F/-1 L.P.F.
C1745
Q1709 E.F.
Q1708 E.F.
R-ch
L-ch
ANALOG SWITCH
ANALOG MUTE
SCL
SDA
A-MUTE INPUT
AUDIO OUTPUT L-ch
AUDIO OUTPUT R-ch
TUNER L-ch
TUNER R-ch
IC1503 XRA15218 AUDIO AMP.
TUNER/IF CIRCUIT
TO TERMINAL BLOCK
STEREO MUTE
FROM TUNER/IF BLOCK

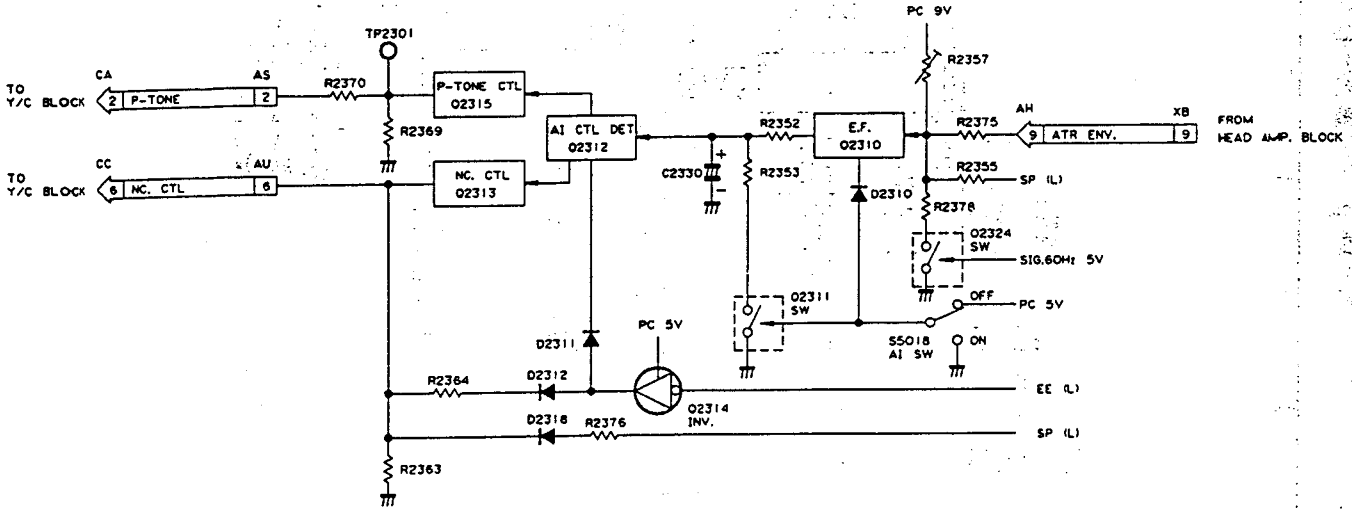
NTSC → PAL SIMPLE CONVERSION BLOCK DIAGRAM

制式转换器(NTSC制式→PAL制式)电路的方框图


TP5502
C5551
R5551
R5557
VCO ADJ.
PC 5V
C5556
C5557
R5555
R5556
PC 5V
C5552
BGP
VCC
FROM
Y/C BLOCK
CC
AU
9 COMPOSITE SYNC 9
MMV
FH VCO
15.735KHz
BGP M.M.
IC5501
VHIM52063SP-1
NTSC → PAL
CONVERSION
PHASE
DETECTOR
1/2
FLIP FLOP
SW
CONTROL
C5553
C5554
R5552
PC 5V
R5563
a
b
c
d
NTSC → PAL CTL 5V
Q5550
SW
GCA
AMP.
GND
FROM
Y/C BLOCK
CC
AU
1 CHROMA OUTPUT 1
C5565
C5566
C5567
TP5504
R5562
R5559
C5561
C5560
C5562
C5563
R5558
BURST
PHASE
SHIFT -45°
Q5805
E.F.
COLOUR
TINT CORRECT
BURST
PHASE
SHIFT +45°
c a b d c a b
TO
Y/C BLOCK
CC
AU
2 CHROMA INPUT 2

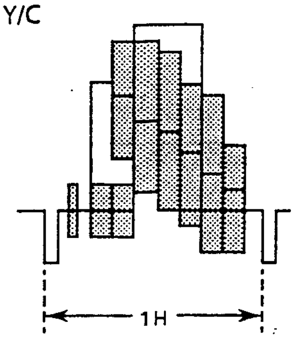
AUTO PICTURE CONTROL BLOCK DIAGRAM

自动图象控制电路方框图


PC 9V
TP2301
R2357
TO
Y/C BLOCK
CA
AS
2 P-TONE 2
R2370
P-TONE CTL
Q2315
R2369
AI CTL DET
Q2312
R2352
E.F.
Q2310
R2375
AH
XB
9 ATR ENV. 9
FROM
HEAD AMP. BLOCK
TO
Y/C BLOCK
CC
AU
6 NC. CTL 6
NC. CTL
Q2313
C2330
R2353
D2310
R2355
SP (L)
R2378
Q2324
SW
SIG.60Hz 5V
Q2311
SW
OFF
PC 5V
PC 5V
D2311
S5018
AI SW
ON
R2364
D2312
Q2314
INV.
EE (L)
D2318
R2376
SP (L)
R2363

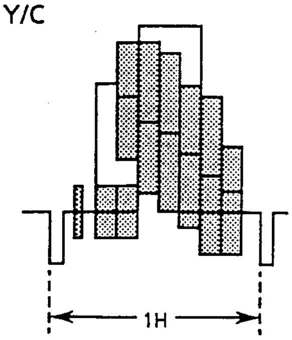
WAVEFORMS

Y/C



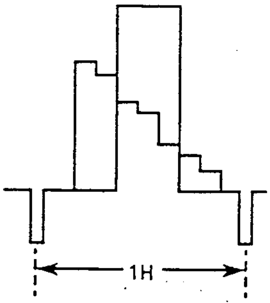
V:1.0Vp-p
IC201 PIN37 REC/EE

Y/C



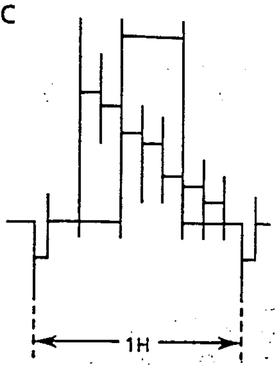
V:2.0Vp-p
IC201 PIN34 REC/PB

Y/C



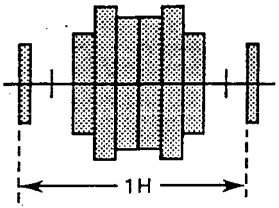
V:540mVp-p REC/EE
V:550mVp-p PB
IC201 PIN4

Y/C



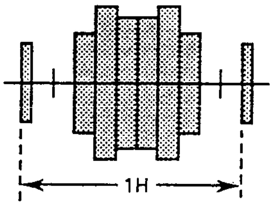
V:500mVp-p
TP201 REC/EE

Y/C



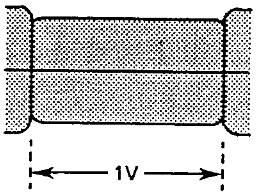
V:370mVp-p REC/EE
V:100mVp-p PB
IC201 PIN15

Y/C



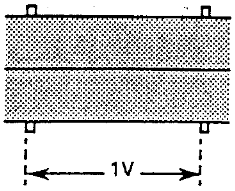
V:350mVp-p
IC201 PIN29 PB

Y/C



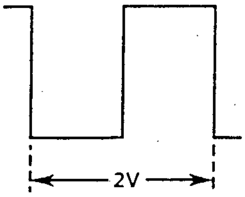
V:300mVp-p
IC201 PIN39 PB

Y/C



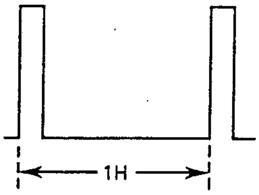
V:1.0Vp-p
TP203 REC

Y/C



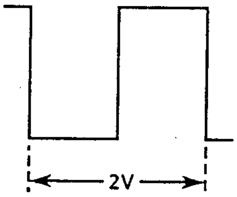
V:1.2Vp-p
IC201 PIN41
CHROMA ROTATION

Y/C



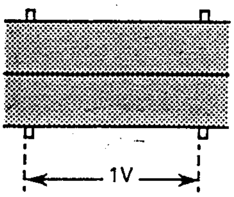
V:4.0Vp-p
IC201 PIN32
COMPOSITE SYNC

H/A



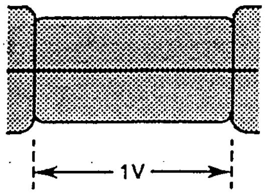
V:3.6Vp-p
HEAD SWITCHING PULSE
AH CONNECTOR PIN4
XB CONNECTOR PIN4

H/A



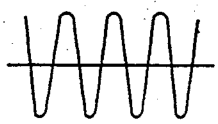
V:120mVp-p (SP)
V:90mVp-p (LP)
XB CONNECTOR PIN2 REC
AH CONNECTOR PIN2

H/A



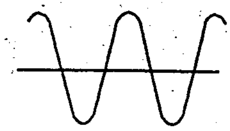
V:220mVp-p (SP)
V:180mVp-p (LP)
XB CONNECTOR PIN6 PB
AH CONNECTOR PIN6

SERVO



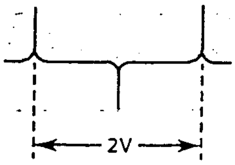
H:760Hz (PAL SP)
H:1080Hz (NTSC SP)
V:1.7Vp-p
AP CONNECTOR PIN6
PB/REC

SERVO

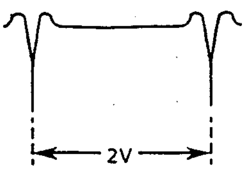
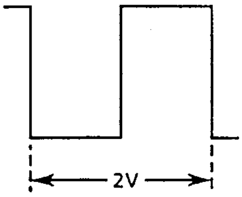
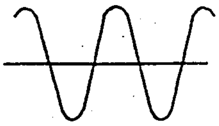
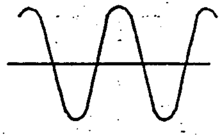
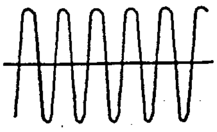
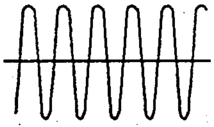
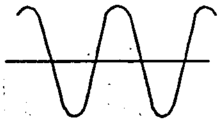
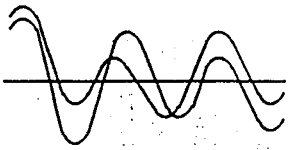
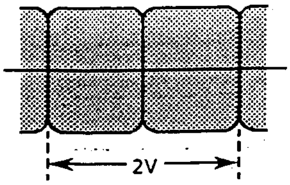
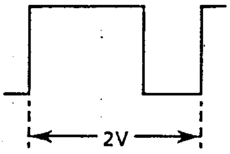
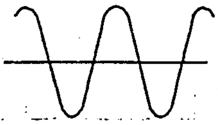
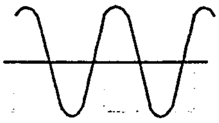
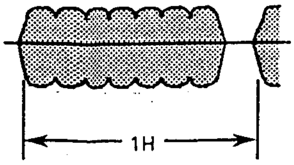
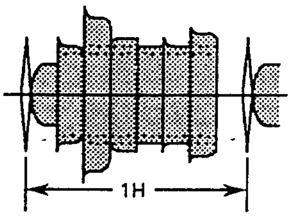
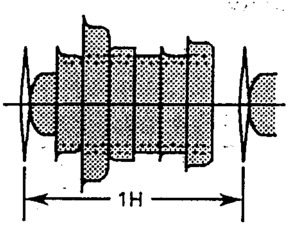
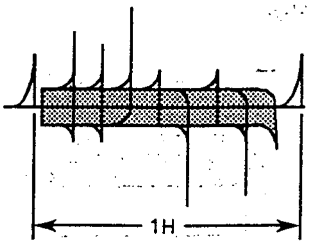


H:600Hz (PAL)
H:720Hz (NTSC)
V:40mVp-p
AD CONNECTOR PIN4
PB/REC

SERVO



V:1.1Vp-p (SP MODE)
IC702 PIN4 PB

SERVO  H:25Hz (PAL) V:400mVp-p AD CONNECTOR PIN1 PB	SERVO  H:25Hz (PAL) V:4.2Vp-p IC702 PIN15 PB	AUDIO  H:1kHz V:38mVp-p IC601 PIN11 REC/EE	AUDIO  H:1kHz V:1.8Vp-p IC601 PIN24 REC
AUDIO  H:70kHz ± 5kHz V:8mVp-p TP601 (+), TP602 (–) REC	AUDIO  H:70kHz ± 5kHz V:66Vp-p T601 PIN5 REC	AUDIO  H:1kHz V:32mVp-p IC601 PIN9 PB	AUDIO Hi-Fi REC FM SIGNAL  H:32µsec (0.2µsec/div) V:32mVp-p TP6304 REC
AUDIO Hi-Fi PB FM B.P.F OUTPUT  H:20msec V:150~250mVp-p TP6303 PB	AUDIO Hi-Fi HEAD SW PULSE  V:5.0Vp-p TP6305 REC/PB	KEY CONTROL (VC-H980/H980ETS)  V:220mVp-p H:1kHz IC6103 1PIN KARAOKE PB	KEY CONTROL (VC-H980/H980ETS)  V: 220mVp-p H:1kHz IC6005 1PIN KARAOKE PB
SECAM CHROMA  V:1.0Vp-p IC5301 PIN27 REC/EE	SECAM CHROMA  V:100mVp-p Q5313 EMITTER REC/EE	SECAM CHROMA  V:320mVp-p IC5301 PIN10 PB	SECAM CHROMA  V:600mVp-p IC5301 PIN7 REC/EE

- **AUDIO** REC: – 8dBs 1KHz INPUT SIGNAL PB: Alignment tape (VROCPSV, 1KHz Level control signal)

SIGNAL FLOW SYMBOLS AT A GLANCE

以下用箭头解释各电路中的信号流程

MAIN CIRCUIT (2) 主电路 (2)

PB-C	Playback Chrominance Signal 再现色度信号	REC-C	Recording Chrominance Signal 记录色度信号
PB-Y	Playback Luminance Signal 再现亮度信号	REC-Y	Recording Luminance Signal 记录亮度信号
E-E	E-E Signal (Video) (Audio) E-E信号(视频/音频)	PB-C	NTSC → PAL Conversion NTSC制式→PAL制式转换信号

MAIN CIRCUIT (1) 主电路 (1)

D-ERR	Drum Error Voltage 磁鼓误差电压	C-ERR	Capstan Error Voltage 主导轴误差电压
D-FG	Drum Frequency Comparison Signal 磁鼓频率比较信号	C-FG	Capstan Frequency Comparison Signal 主导轴频率比较信号
D-PG	Drum Phase Comparison Signal 磁鼓相位比较信号	PBCTL	Playback Control Comparison Signal 再现控制信号

MAIN CIRCUIT (3) 主电路 (3)

PB-C	Playback Chrominance Signal 再现色度信号	PB-Y	Playback Luminance Signal 再现亮度信号
E-E	Audio E-E Signal 音频 E-E信号		

Y/C CIRCUIT Y/C(亮度/色度)电路

PB-C	Playback Chrominance Signal 再现色度信号	REC-C	Recording Chrominance Signal 记录色度信号
PB-Y	Playback Luminance Signal 再现亮度信号	REC-Y	Recording Luminance Signal 记录亮度信号
E-E	E-E Signal (Video) (Audio) E-E信号(视频/音频)		

Hi-Fi CIRCUIT Hi-Fi(高保真)电路

PB	Audio Playback Signal 音频再生信号	REC	Audio Recording Signal 音频记录信号
E-E	Audio E-E Signal 音频 E-E信号	GAME	GAME Signal (Except VC-H91/H91ETS) 电子游戏信号(VC-H91/H91ETS除外)
MIC	MIC Signal (VC-H980/H980ETS) 麦克风信号(仅限于VC-H980/H980ETS)	KROK	KARAOKE Signal (VC-H980/H980ETS) 卡拉OK信号(仅限于VC-H980/H980ETS)

TUNER/IF · JACK CIRCUIT 调谐器/中频电路图• 插座电路

PB-C	Playback Chrominance Signal 再现色度信号	REC-C	Recording Chrominance Signal 记录色度信号
PB-Y	Playback Luminance Signal 再现亮度信号	REC-Y	Recording Luminance Signal 记录亮度信号
PB	Audio Playback Signal 音频再生信号	REC	Audio Recording Signal 音频记录信号
E-E	E-E Signal (Video) (Audio) E-E信号(视频/音频)		

SIF · NICAM CIRCUIT (Except VC-H91/H91ETS) SIF电路• NICAM电路

E-E	E-E Signal (Video/Audio) E-E信号(视频/音频)	REC	Audio Recording Signal 音频记录信号
E-E-2	2nd E-E Signal (Video/Audio) 二次E-E信号(视频/音频)	REC-2	2nd Audio Recording Signal 二次音频记录信号

SECAM CHROMA CIRCUIT (VC-H91/H91ETS) SECAM色度电路

REC-C	Recording Chrominance Signal 记录色度信号	PB-C	Playback Chrominance Signal 再现色度信号

HEAD AMP CIRCUIT 前置放大器电路

PB-C	Playback Chrominance Signal 再现色度信号	REC-C	Recording Chrominance Signal 记录色度信号
PB-Y	Playback Luminance Signal 再现亮度信号	REC-Y	Recording Luminance Signal 记录亮度信号
PB	Audio Playback Signal 音频再生信号	REC	Audio Recording Signal 音频记录信号

SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET. PARTS MARKED WITH "⚠" AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET.
BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER.

SAFETY NOTES:
1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

NOTES:
1. *The unit of resistance "ohm" is omitted (k = 1000 ohm, M = 1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *The unit of capacitance "F" is omitted (μ = μF, P = μμF).*
4. *The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.*

VOLTAGE MEASUREMENT CONDITIONS:
1. *DC voltages are measured between points indicated and chassis ground by VTVM, with AC110~240V/50/60Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.*
2. *Voltages are measured with 10000μV B & W or colour signal.*

WAVEFORM MEASUREMENT CONDITIONS:
10000μV 87.5 percent modulated colour bar signal is fed into tuner.

CAUTION:
This circuit diagram is original one. Therefore there may be a slight difference from yours.

电路原理图

安全使用注意要点：

为了保证本装置的安全性及可靠性，务请使用该型号装置的原配零件

注有⚠标记，以及打有黑色阴影线的部分，对于保护本装置的安全，保持其使用性能及使用寿命极其重要。

(更换这些部件时)务请使用规定编号者。

安全使用注意事项：
1. 在进行部件更换之前，务请拔出电源插头。
2. 本装置工作时，机芯底盘的半导体散热片有触电之虑，务请注意。

电路单位说明：
1. 电阻"欧姆"(Ω)单位予以略记(K=千欧，M=兆欧姆)。
2. 除特别说明者外，图中电阻功率均为1/8瓦特。
3. 电容"法拉"(F)单位予以略记(μ=微法拉，P=微微法拉)。
4. 在括弧内的数值为PB状态，无括弧的数值为REC状态。

电压测定条件
1. 除特别说明者外，直流电压是以110~240V,50/60Hz交流电源供给本装置时，将所有控制调节都调至正常状态后，把VTVM(电子管电压表)连接于测点与底盘接地之间所得的读数。
2. 电压由10000μV黑白或彩色信号测定。

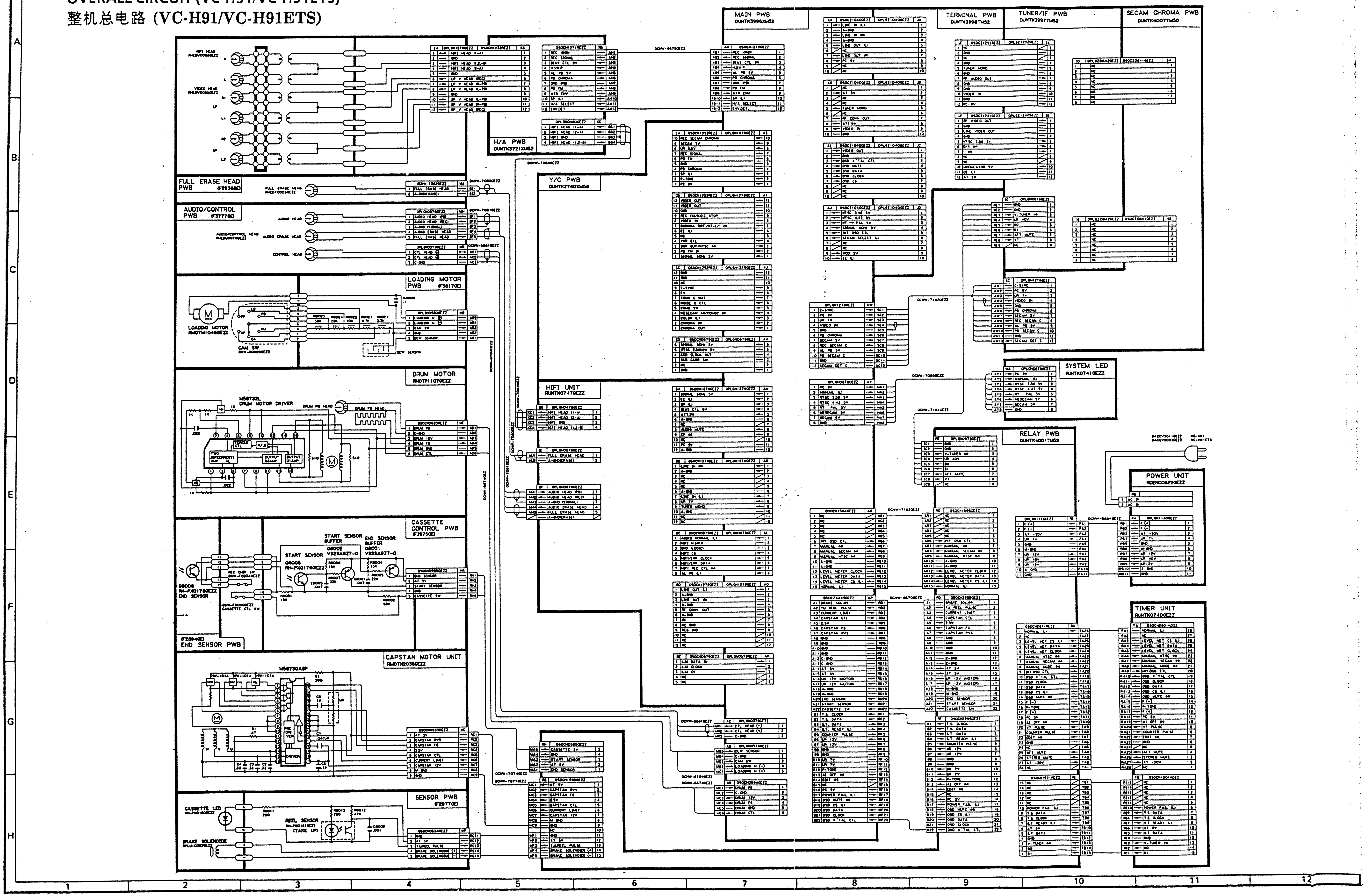
波形测定条件：

向调谐器输入10000μV的87.5%调制色带信号的状态时进行测量。

注意：

这里的电路原理图均为最初设计原图，与您的机器的电路原理图可能有不同之处。

OVERALL CIRCUIT (VC-H91/VC-H91ETS)
整机总电路 (VC-H91/VC-H91ETS)


HIFI HEAD
VIDEO HEAD
H/A PWB
FULL ERASE HEAD PWB
AUDIO/CONTROL PWB
LOADING MOTOR PWB
LOADING MOTOR
CAM SW
DRUM MOTOR
M56732L
DRUM MOTOR DRIVER
CASSETTE CONTROL PWB
START SENSOR BUFFER
END SENSOR BUFFER
END SENSOR PWB
CAPSTAN MOTOR UNIT
M56730ASP
SENSOR PWB
CASSETTE LED
REEL SENSOR (TAKE UP)
BRAKE SOLENOIDE
Y/C PWB
HIFI UNIT
MAIN PWB
TERMINAL PWB
TUNER/IF PWB
SECAM CHROMA PWB
SYSTEM LED
RELAY PWB
POWER UNIT
TIMER UNIT
A
B
C
D
E
F
G
H
1
2
3
4
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6
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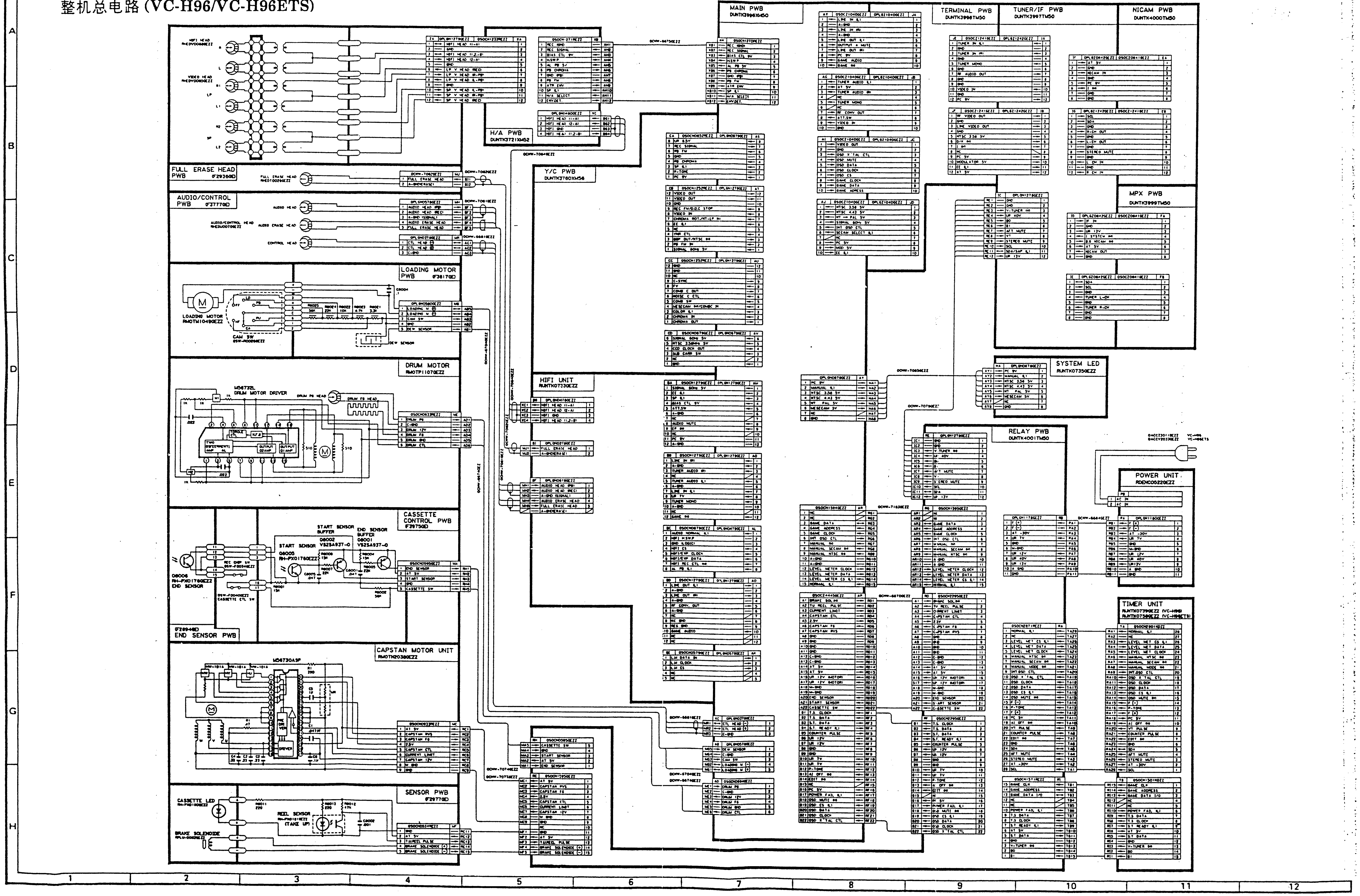
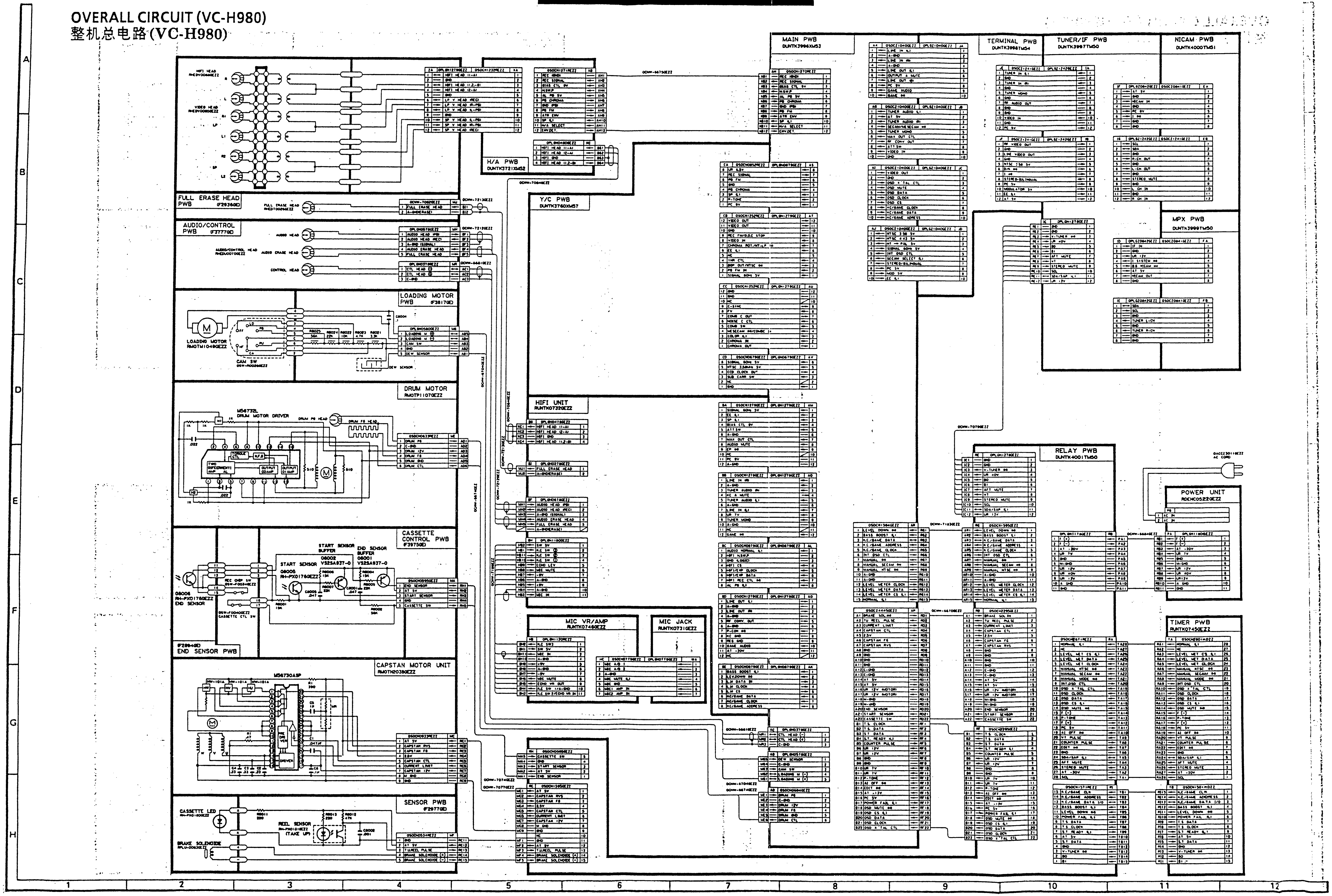
11
12

OVERALL CIRCUIT (VC-H96/VC-H96ETS)
整机总电路 (VC-H96/VC-H96ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
H/A PWB
DUNTK3721XM52
FULL ERASE HEAD PWB
F2936OD
AUDIO/CONTROL PWB
F3777OD
LOADING MOTOR PWB
F3817OD
LOADING MOTOR
RMOTM1049GEZZ
CAM SW
DEW SENSOR
DRUM MOTOR
RMOTP1107GEZZ
M56732L
DRUM MOTOR DRIVER
CASSETTE CONTROL PWB
F3975OD
START SENSOR BUFFER
END SENSOR BUFFER
START SENSOR
END SENSOR
END SENSOR PWB
F2894OD
CAPSTAN MOTOR UNIT
RMOTH2038GEZZ
M56730ASP
SENSOR PWB
F2977OD
CASSETTE LED
REEL SENSOR (TAKE UP)
BRAKE SOLENOIDE
Y/C PWB
DUNTK3760XM56
HIFI UNIT
RUNTK0733GEZZ
MAIN PWB
DUNTK3996XM50
TERMINAL PWB
DUNTK3998TM50
TUNER/IF PWB
DUNTK3997TM50
NICAM PWB
DUNTK4000TM50
MPX PWB
DUNTK3999TM50
SYSTEM LED
RUNTK0735GEZZ
RELAY PWB
DUNTK4001TM50
POWER UNIT
RDENC0522GEZZ
TIMER UNIT
RUNTK0739GEZZ (VC-H96)
RUNTK0758GEZZ (VC-H96ETS)

OVERALL CIRCUIT (VC-H980)
整机总电路(VC-H980)


MAIN PWB
DUNTK3996XM53
TERMINAL PWB
DUNTK3998TM54
TUNER/IF PWB
DUNTK3997TM50
NICAM PWB
DUNTK4000TM51
H/A PWB
DUNTK3721XM52
Y/C PWB
DUNTK3760XM57
FULL ERASE HEAD PWB
AUDIO/CONTROL PWB
LOADING MOTOR PWB
DRUM MOTOR
HIFI UNIT
MPX PWB
RELAY PWB
POWER UNIT
RDENC0522GEZZ
QACCZ3011GEZZ
AC CORD
TIMER PWB
RUNTK0745GEZZ
CASSETTE CONTROL PWB
END SENSOR PWB
CAPSTAN MOTOR UNIT
SENSOR PWB
MIC VR/AMP
MIC JACK
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
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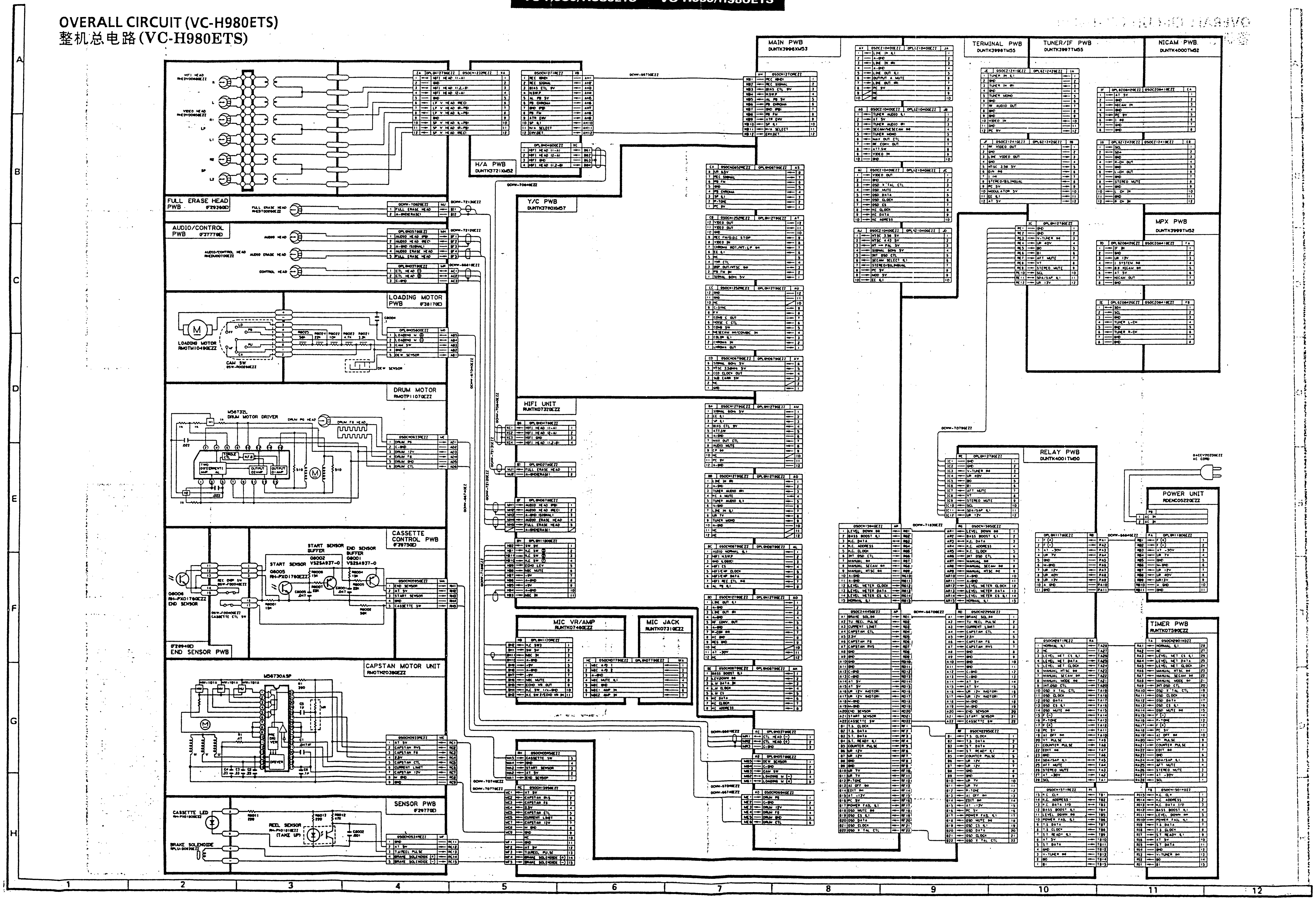
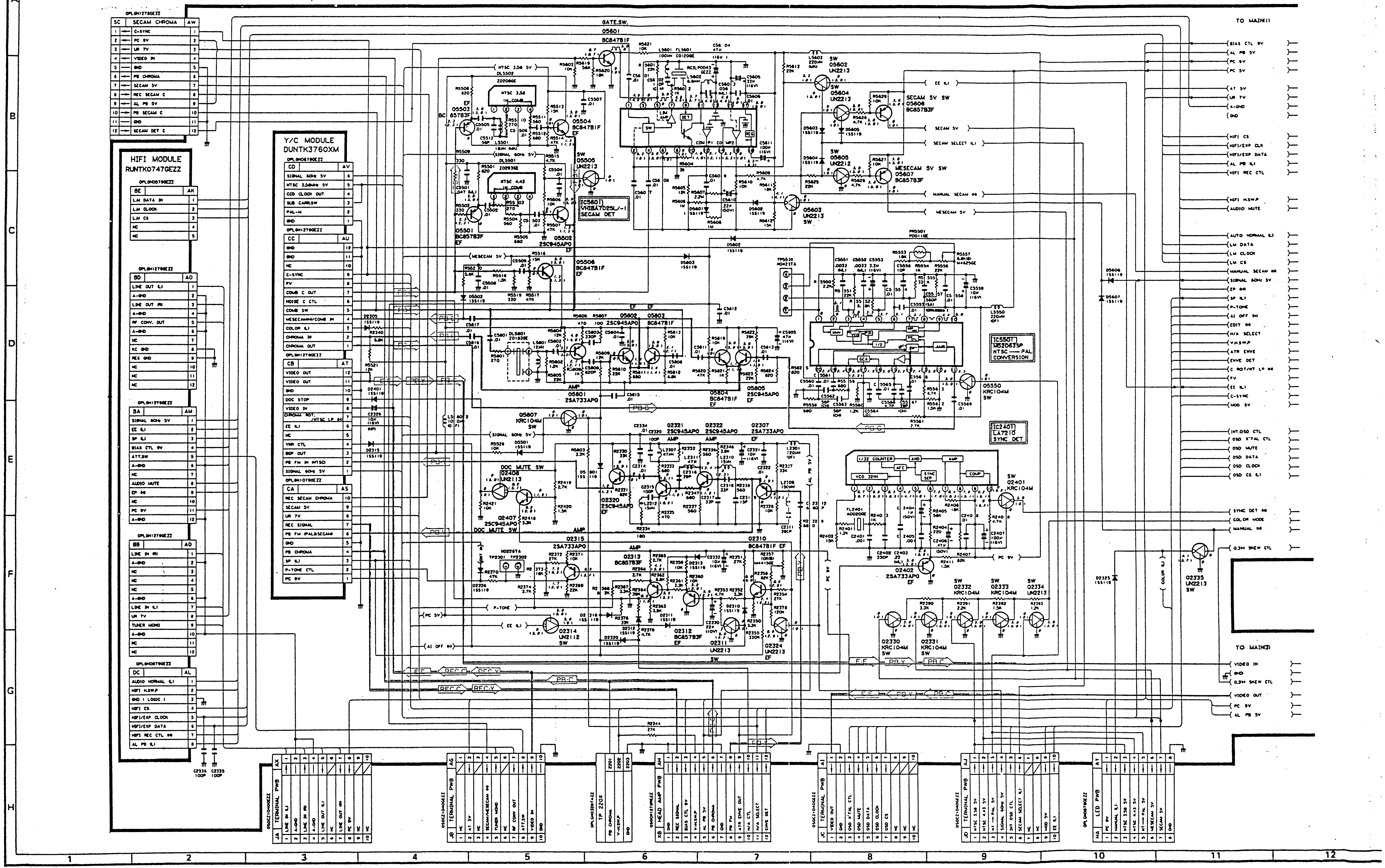
11
12

OVERALL CIRCUIT (VC-H980ETS)
整机总电路(VC-H980ETS)


FULL ERASE HEAD PWB
AUDIO/CONTROL PWB
LOADING MOTOR PWB
LOADING MOTOR
CAM SW
DRUM MOTOR
M56732L DRUM MOTOR DRIVER
CASSETTE CONTROL PWB
START SENSOR
END SENSOR
END SENSOR PWB
CAPSTAN MOTOR UNIT
M56730ASP
SENSOR PWB
CASSETTE LED
REEL SENSOR (TAKE UP)
BRAKE SOLENOIDE
H/A PWB
Y/C PWB
HIFI UNIT
MIC VR/AMP
MIC JACK
MAIN PWB
TERMINAL PWB
TUNER/IF PWB
NICAM PWB
MPX PWB
RELAY PWB
POWER UNIT
TIMER PWB
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

MAIN CIRCUIT (2) (VC-H91/VC-H91ETS)

主电路 (2) (VC-H91/VC-H91ETS)


SECAM CHROMA
HIFI MODULE
RUNTK0747GEZZ
Y/C MODULE
DUNTK3760XM
GATE.SW.
Q5601
BC847B1F
IC5601
VHIBA7025L/-1
SECAM DET
IC5501
M52063SP
NTSC → PAL CONVERSION
IC2401
LA7210
SYNC DET
Q5550
KRC104M
Q2401
KRC104M
Q2402
2SA733AP0
Q2335
UN2213
TO MAIN(1)
TO MAIN(3)
TERMINAL PWB
HEAD AMP PWB
LED PWB
TP 2202
1/32 COUNTER
VCO 32fH
AFC
AMP
COMP
DOC MUTE SW
AMP
PB-C
PB-Y
REC-C
REC-Y
E-E
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H

* VOLTAGE MEASUREMENT MODE

PB .... Parentheses ( )

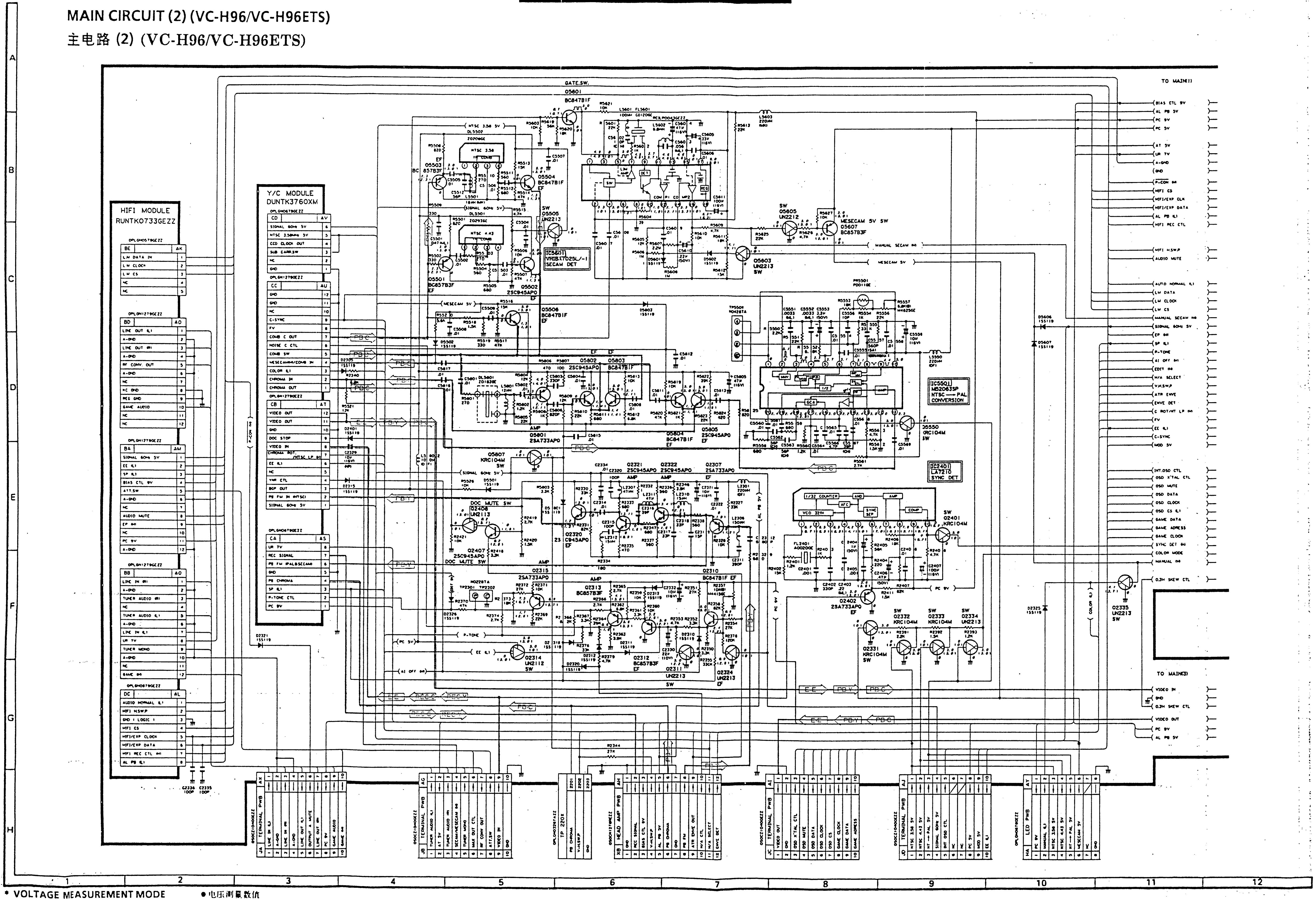
●电压测量数值

再现：括弧内的数值

VC-H91/H91ETS
VC-H96/H96ETS
VC-H980/H980ETS

MAIN CIRCUIT (2) (VC-H96/VC-H96ETS)

主电路 (2) (VC-H96/VC-H96ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
HIFI MODULE
RUNTK0733GEZZ
Y/C MODULE
DUNTK3760XM
IC5601
VHiBA7025L/-1
SECAM DET
IC5501
M52063SP
NTSC — PAL
CONVERSION
IC2401
LA7210
SYNC DET
TO MAIN(1)
TO MAIN(3)
GATE SW.
Q5601
BC847B1F
Q5801
2SA733AP0
Q5802
2SC945AP0
Q5803
BC847B1F
Q5804
BC847B1F
Q5805
2SC945AP0
Q5807
KRC104M
Q5550
KRC104M
Q2401
KRC104M
Q2402
2SA733AP0
Q2335
UN2213
DOC MUTE SW
TERMINAL PWB
HEAD AMP PWB
LED PWB
TP 2201

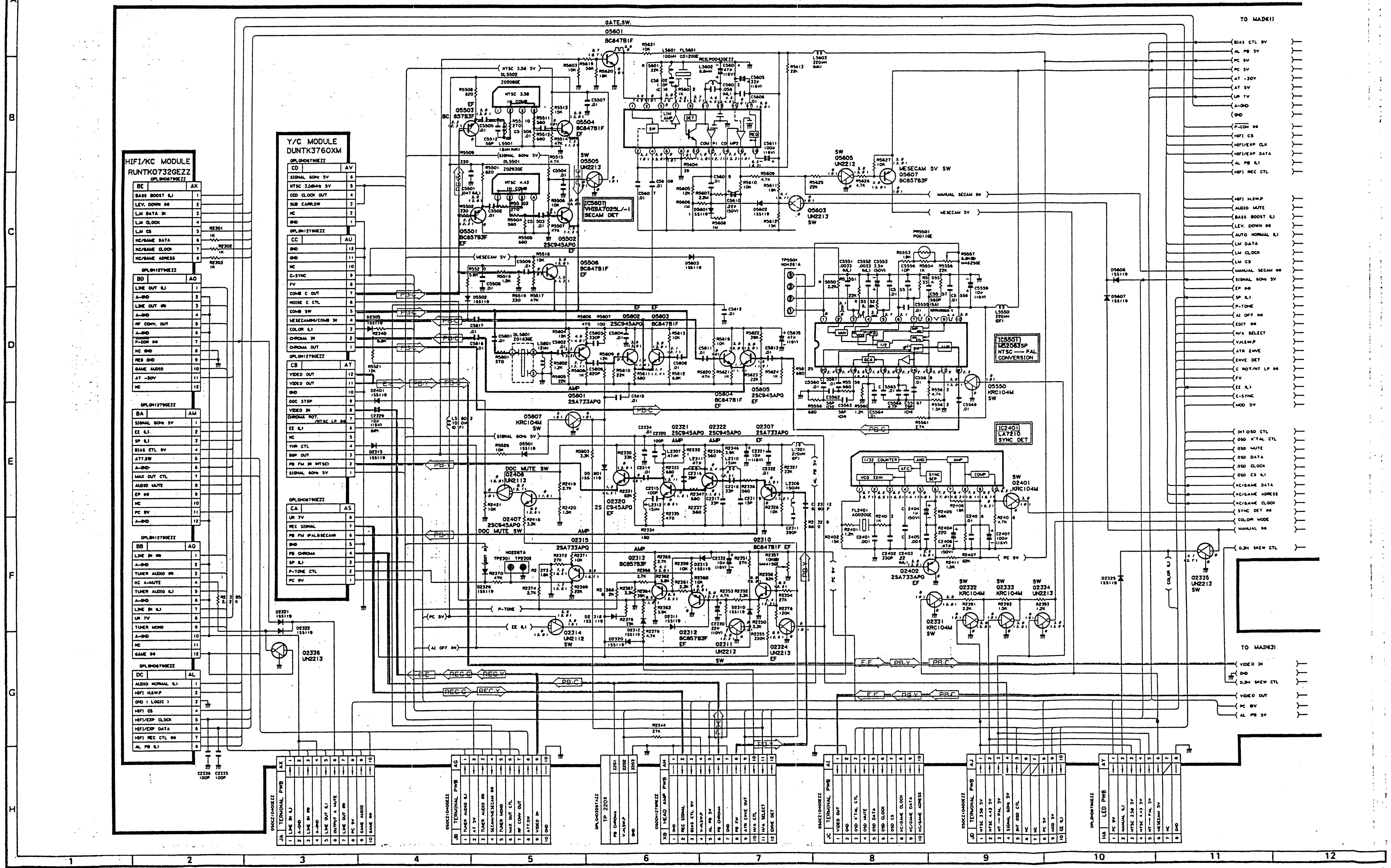
- VOLTAGE MEASUREMENT MODE

PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

MAIN CIRCUIT (2) (VC-H980/VC-H980ETS)

主电路 (2) (VC-H980/VC-H980ETS)


HIFI/KC MODULE
RUNTK0732GEZZ
Y/C MODULE
DUNTK3760XM
IC5601
VHIBA7025L/-1
SECAM DET
IC5501
M52063SP
NTSC — PAL CONVERSION
IC2401
LA7210
SYNC DET
TO MAIN(1)
TO MAIN(3)
GATE.SW.
Q5601
BC847B1F
Q5503
BC857B3F
Q5504
BC847B1F
Q5505
UN2213
Q5501
BC857B3F
Q5502
2SC945APO
Q5506
BC847B1F
Q5605
UN2212
Q5607
BC857B3F
Q5603
UN2213
Q5801
2SA733APQ
Q5802
2SC945APO
Q5803
BC847B1F
Q5804
BC847B1F
Q5805
2SC945APQ
Q5550
KRC104M
Q5807
KRC104M
Q2321
2SC945APO
Q2322
2SC945APO
Q2307
2SA733APO
Q2406
UN2113
Q2407
2SC945APO
Q2320
2SC945APO
Q2315
2SA733APQ
Q2313
BC857B3F
Q2310
BC847B1F
Q2314
UN2112
Q2312
BC857B3F
Q2311
UN2213
Q2324
UN2213
Q2336
UN2213
Q2401
KRC104M
Q2402
2SA733APO
Q2332
KRC104M
Q2333
KRC104M
Q2334
UN2213
Q2331
KRC104M
Q2335
UN2213
DOC MUTE SW
1/32 COUNTER
VCO 32fH
FL2401
NTSC 3.58 5V
MESECAM 5V SW
PB-C
PB-Y
E-E
REC-C
REC-Y
JA TERMINAL PWB
JB TERMINAL PWB
TP 2202
XB HEAD AMP PWB
JC TERMINAL PWB
JD TERMINAL PWB
HA LED PWB
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

* VOLTAGE MEASUREMENT MODE

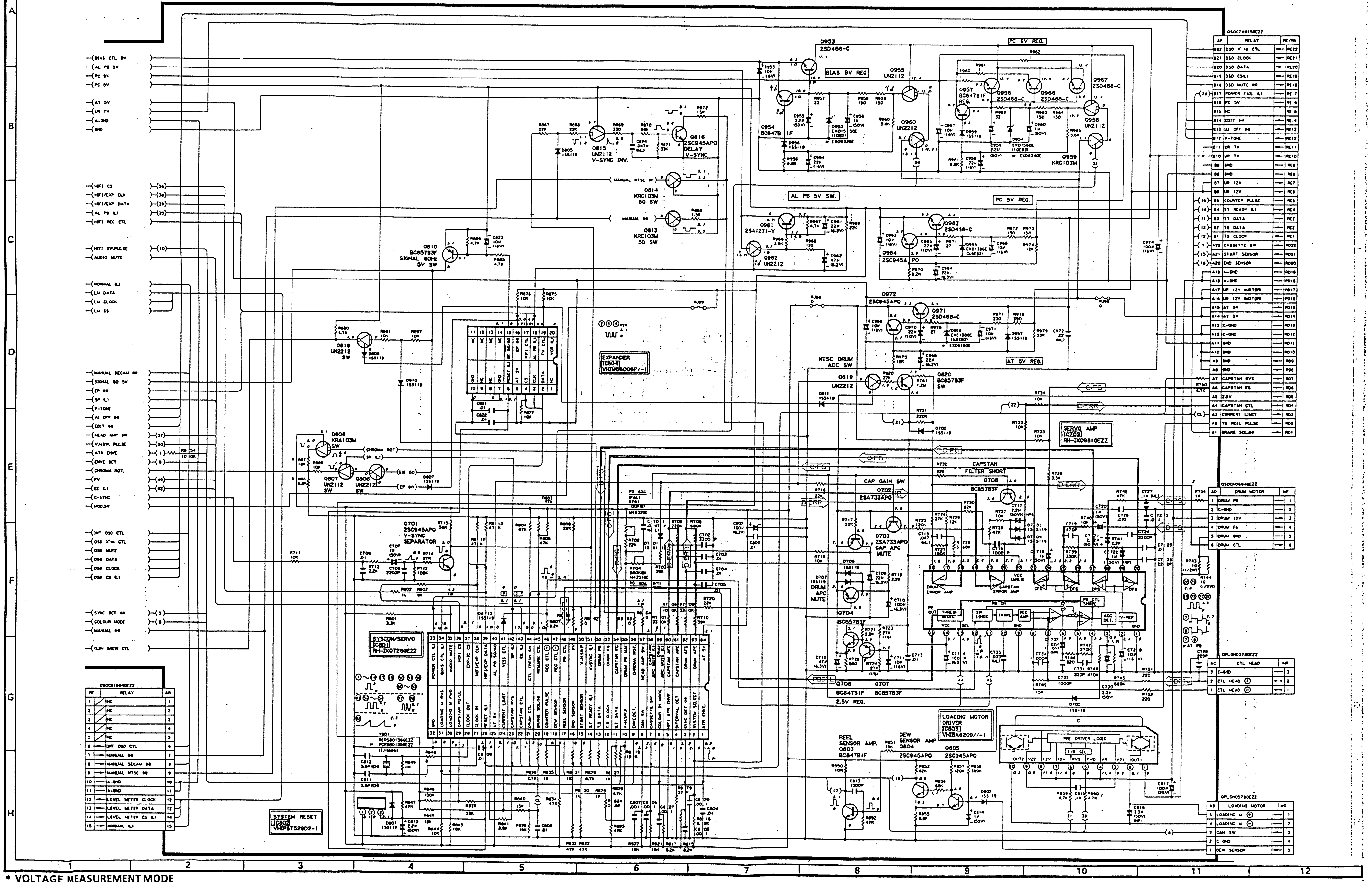
PB .... Parentheses ( )

● 电压测量数值

再现：括弧内的数值

MAIN CIRCUIT (1) (VC-H91/VC-H91ETS)

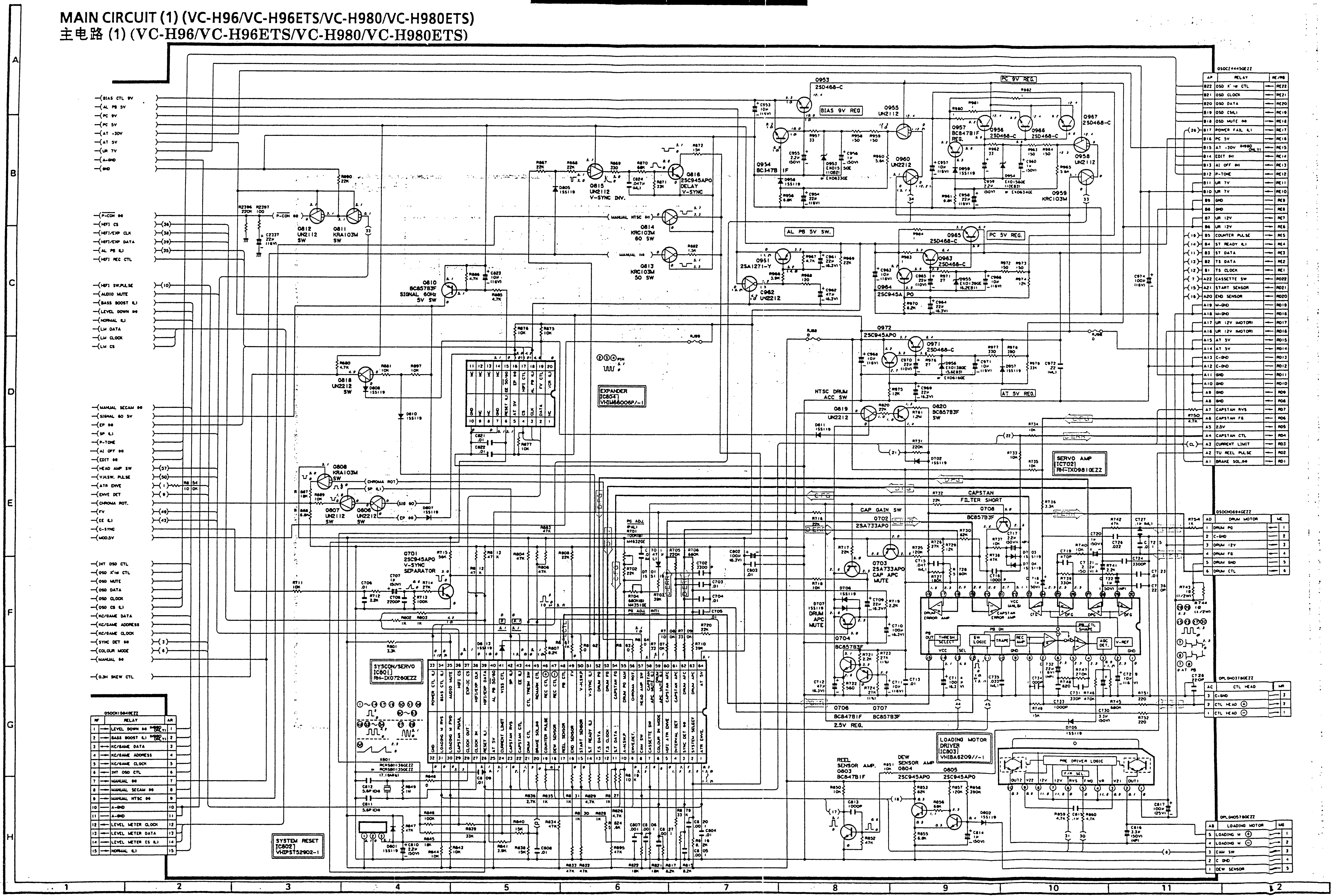
主电路 (1) (VC-H91/VC-H91ETS)


BIAS 9V REG
PC 9V REG.
AL PB 5V SW.
PC 5V REG.
AT 5V REG.
EXPANDER
IC804
VHIM66006P/-1
SERVO AMP
IC702
RH-IX0981GEZZ
SYSCON/SERVO
IC801
RH-IX0726GEZZ
SYSTEM RESET
IC802
VHIPST52902-1
LOADING MOTOR DRIVER
IC601
VHIBA6209//-1
CAPSTAN FILTER SHORT
CAP GAIN SW
CAP APC MUTE
DRUM APC MUTE
NTSC DRUM ACC SW
V-SYNC SEPARATOR
V-SYNC INV.
DELAY V-SYNC
SIGNAL 60Hz 5V SW
REEL SENSOR AMP.
DEW SENSOR AMP
2.5V REG.
PRE DRIVER LOGIC
DRUM MOTOR
CTL HEAD
LOADING MOTOR
RELAY
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses( )
REC ...... Without Parentheses

●电压测量数值
再现：括弧内的数值
记录：无括弧的数值

MAIN CIRCUIT (1) (VC-H96/VC-H96ETS/VC-H980/VC-H980ETS)
主电路 (1) (VC-H96/VC-H96ETS/VC-H980/VC-H980ETS)

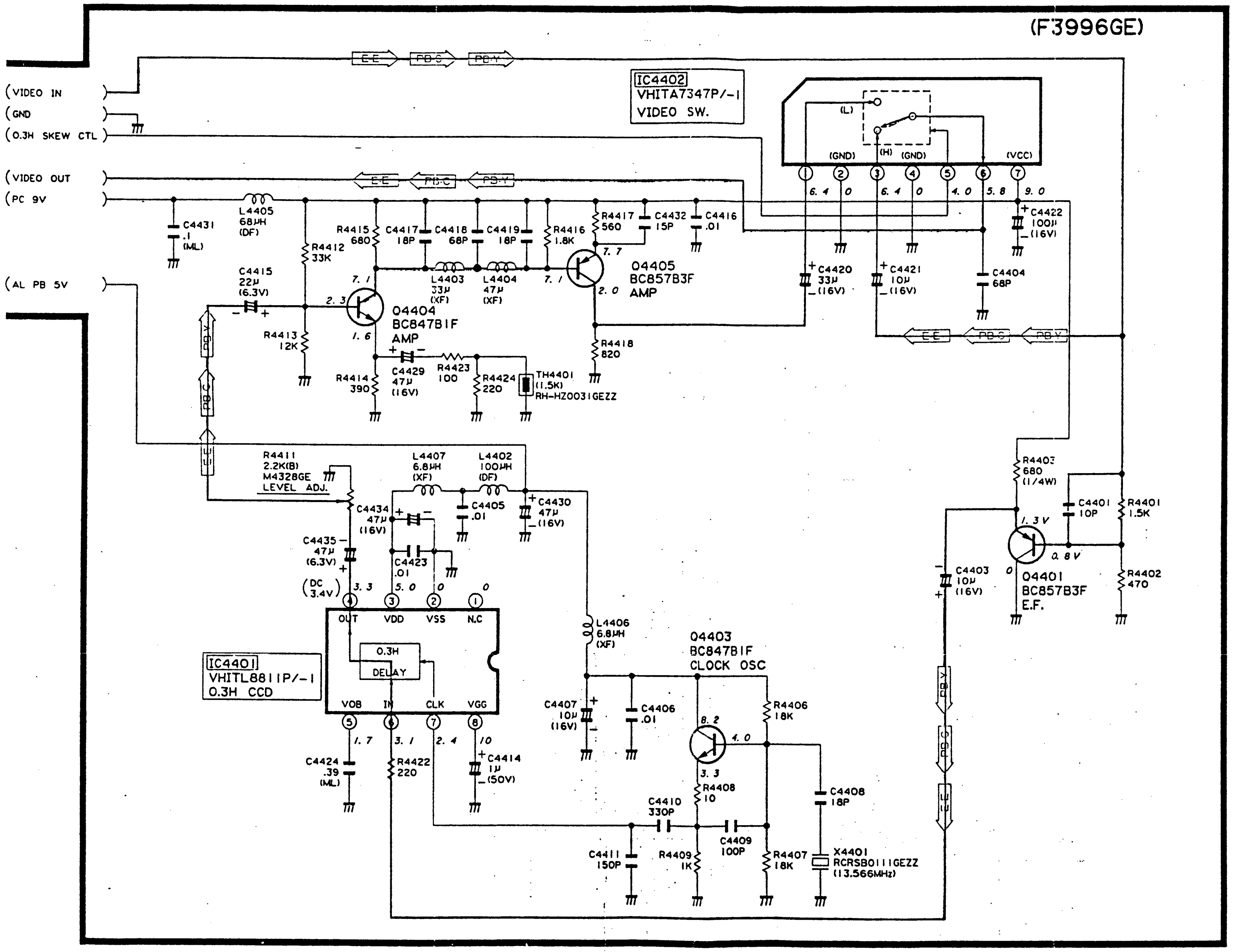

A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
BIAS CTL 9V
AL PB 5V
PC 9V
PC 5V
AT -30V
AT 5V
UR 7V
A-GND
GND
Q953 2SD468-C
BIAS 9V REG
Q955 UN2112
Q954 BC347B 1F
Q960 UN2212
PC 9V REG.
Q957 BC847B1F REG.
Q956 2SD468-C
Q966 2SD468-C
Q967 2SD468-C
Q958 UN2112
Q959 KRC103M
Q815 UN2112 V-SYNC INV.
Q816 2SC945APO DELAY V-SYNC
Q814 KRC103M 60 SW
Q813 KRC103M 50 SW
MANUAL NTSC
Q812 UN2112 SW
Q811 KRA103M SW
AL PB 5V SW.
Q951 2SA1271-Y
Q962 UN2212
Q965 2SD468-C
PC 5V REG.
Q963 2SD468-C
Q964 2SC945A PO
Q810 BC857B3F SIGNAL 60Hz 5V SW
Q818 UN2212 SW
EXPANDER [IC804] VHiM66006P/-1
Q972 2SC945APO
Q971 2SD468-C
AT 5V REG.
NTSC DRUM ACC SW
Q819 UN2112
Q820 BC857B3F SW
SERVO AMP [IC702] RH-IX0981OEZZ
Q808 KRA103M SW
Q807 UN2112 SW
Q806 UN2212 SW
CHROMA ROT
Q701 2SC945APO V-SYNC SEPARATOR
CAPSTAN FILTER SHORT
Q708 BC857B3F
CAP GAIN SW
Q702 2SA733APO
Q703 2SA733APO CAP APC MUTE
DRUM APC MUTE
Q704 BC857B3F
Q705 BC847B1F
Q706 BC847B1F
Q707 BC857B3F
2.5V REG.
SYSCON/SERVO [IC801] RH-IX0726GEZZ
SYSTEM RESET [IC802] VHiPST529O2-1
X801
REEL SENSOR AMP. Q803 BC847B1F
DEW SENSOR AMP Q804 2SC945APO
Q805 2SC945APO
LOADING MOTOR DRIVER [IC803] VHiBA6209//-1
PRE DRIVER LOGIC
RELAY
LEVEL DOWN
BASS BOOST
KC/GAME DATA
KC/GAME ADDRESS
KC/GAME CLOCK
INT OSD CTL
MANUAL
MANUAL SECAM
MANUAL NTSC
A-GND
LEVEL METER CLOCK
LEVEL METER DATA
LEVEL METER CS
NORMAL
OSD X'tal CTL
OSD CLOCK
OSD DATA
OSD CS
OSD MUTE
POWER FAIL
PC 5V
EDIT
AI OFF
P-TONE
UR 7V
GND
UR 12V
COUNTER PULSE
ST READY
ST DATA
TS DATA
TS CLOCK
CASSETTE SW
START SENSOR
END SENSOR
M-GND
UR 12V (MOTOR)
AT 5V
C-GND
CAPSTAN RVS
CAPSTAN FG
2.5V
CAPSTAN CTL
CURRENT LIMIT
TU REEL PULSE
BRAKE SOL.
DRUM MOTOR
DRUM PG
DRUM 12V
DRUM FG
DRUM GND
DRUM CTL
CTL HEAD
LOADING MOTOR
LOADING M
CAM SW
DEW SENSOR

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

MAIN CIRCUIT (3)

主电路 (3)

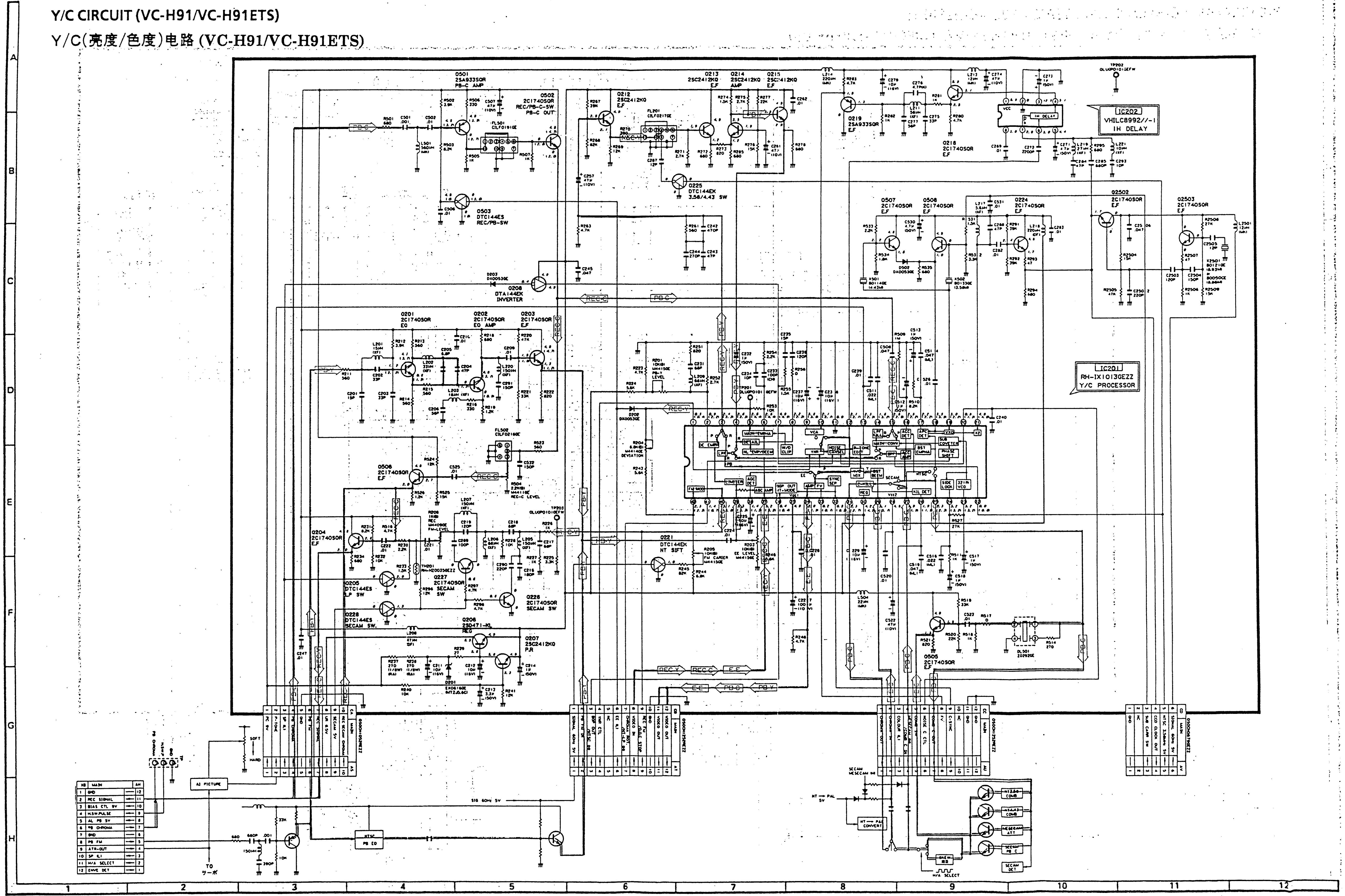

(F3996GE)
VIDEO IN
GND
0.3H SKEW CTL
VIDEO OUT
PC 9V
AL PB 5V
E-E
PB-C
PB-Y
IC4402
VHITA7347P/-1
VIDEO SW.
(L)
(H)
(GND)
(VCC)
L4405 68μH (DF)
C4431 .1 (ML)
R4412 33K
R4415 680
C4417 18P
C4418 68P
C4419 18P
R4416 1.8K
R4417 560
C4432 15P
C4416 .01
L4403 33μ (XF)
L4404 47μ (XF)
C4415 22μ (6.3V)
R4413 12K
Q4404 BC847B1F AMP
Q4405 BC857B3F AMP
R4418 820
C4429 47μ (16V)
R4423 100
R4424 220
R4414 390
TH4401 (1.5K) RH-HZ0031GEZZ
C4420 33μ (16V)
C4421 10μ (16V)
C4404 68P
C4422 100μ (16V)
R4411 2.2K(B) M4328GE LEVEL ADJ.
L4407 6.8μH (XF)
L4402 100μH (DF)
C4434 47μ (16V)
C4405 .01
C4430 47μ (16V)
C4435 47μ (6.3V)
C4423 .01
(DC 3.4V)
OUT
VDD
VSS
N.C
0.3H DELAY
VOB
IN
CLK
VGG
IC4401
VHITL8811P/-1
0.3H CCD
C4424 .39 (ML)
R4422 220
C4414 1μ (50V)
L4406 6.8μH (XF)
Q4403 BC847B1F CLOCK OSC
C4407 10μ (16V)
C4406 .01
R4406 18K
R4408 10
C4410 330P
C4409 100P
C4408 18P
C4411 150P
R4409 1K
R4407 18K
X4401 RCRSB0111GEZZ (13.566MHz)
R4403 680 (1/4W)
C4401 10P
R4401 1.5K
R4402 470
C4403 10μ (16V)
Q4401 BC857B3F E.F.

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

Y/C CIRCUIT (VC-H91/VC-H91ETS)

Y/C(亮度/色度)电路 (VC-H91/VC-H91ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
Q501 2SA933SQR PB-C AMP
Q502 2C1740SQR REC/PB-C-SW PB-C OUT
Q503 DTC144ES REC/PB-SW
Q212 2SC2412KQ E.F
Q213 2SC2412KQ E.F
Q214 2SC2412KQ AMP
Q215 2SC2412KQ E.F
Q225 DTC144EK 3.58/4.43 SW
Q219 2SA933SQR E.F
Q218 2C1740SQR E.F
IC202 VHILC8992//-1 1H DELAY
TP902 QLUP0101GEFW
Q507 2C1740SQR E.F
Q508 2C1740SQR E.F
Q224 2C1740SQR E.F
Q2502 2C1740SQR E.F
Q2503 2C1740SQR E.F
Q208 DTA144EK INVERTER
Q201 2C1740SQR EQ
Q202 2C1740SQR EQ AMP
Q203 2C1740SQR E.F
IC201 RH-IX1013GEZZ Y/C PROCESSOR
FL501 CILF0191GE
FL201 CILF0217GE
FL502 CILF0216GE
Q506 2C1740SQR E.F
Q204 2C1740SQR E.F
Q221 DTC144EK NT SIFT
Q205 DTC144ES LP SW
Q227 2C1740SQR SECAM SW
Q226 2C1740SQR SECAM SW
Q228 DTC144ES SECAM SW.
Q206 2SD471-KL REG
Q207 2SC2412KQ P.R
Q505 2C1740SQR E.F
TP201 QLUP0101GEFW
TP203 QLUP0101GEFW
R201 10K(B) M44150E PB-Y LEVEL
R204 6.8K(B) M44140E DEVIATION
R203 10K(B) M44150E CC LEVEL
R205 10K(B) M44150E FM CARIER
R208 1K(B) REC M44090E FM-LEVEL
R504 2.2K(B) M44110E REC-C LEVEL
TH201 RH-H2003GGEZZ
DL501 Z0292GE
REC-C
PB-C
REC-Y
PB-Y
E-E
SOFT
HARD
TP
A2 PICTURE
NTSC PB EQ
SIG 60Hz 5V
SECAM M/SECAM 9
NT → PAL 5V
NT → PAL CONVERT
NT3.58 COMB
NT4.43 COMB
M/SECAM ATT
SECAM PB C
SECAM DET
GAEW MB
M/A SELECT
TO サーボ
QSODH12PRE22
QSODH12PRE22
QSODH12PRE22
QSODH7PRE22
MAIN
1 GND
2 REC SIGNAL
3 BIAS CTL 5V
4 H.SW.PULSE
5 AL PB 5V
6 PB CHROMA
7 GND
8 PB FM
9 ATR-OUT
10 SP (L)
11 M/A SELECT
12 ENVE DET

* VOLTAGE MEASUREMENT MODE

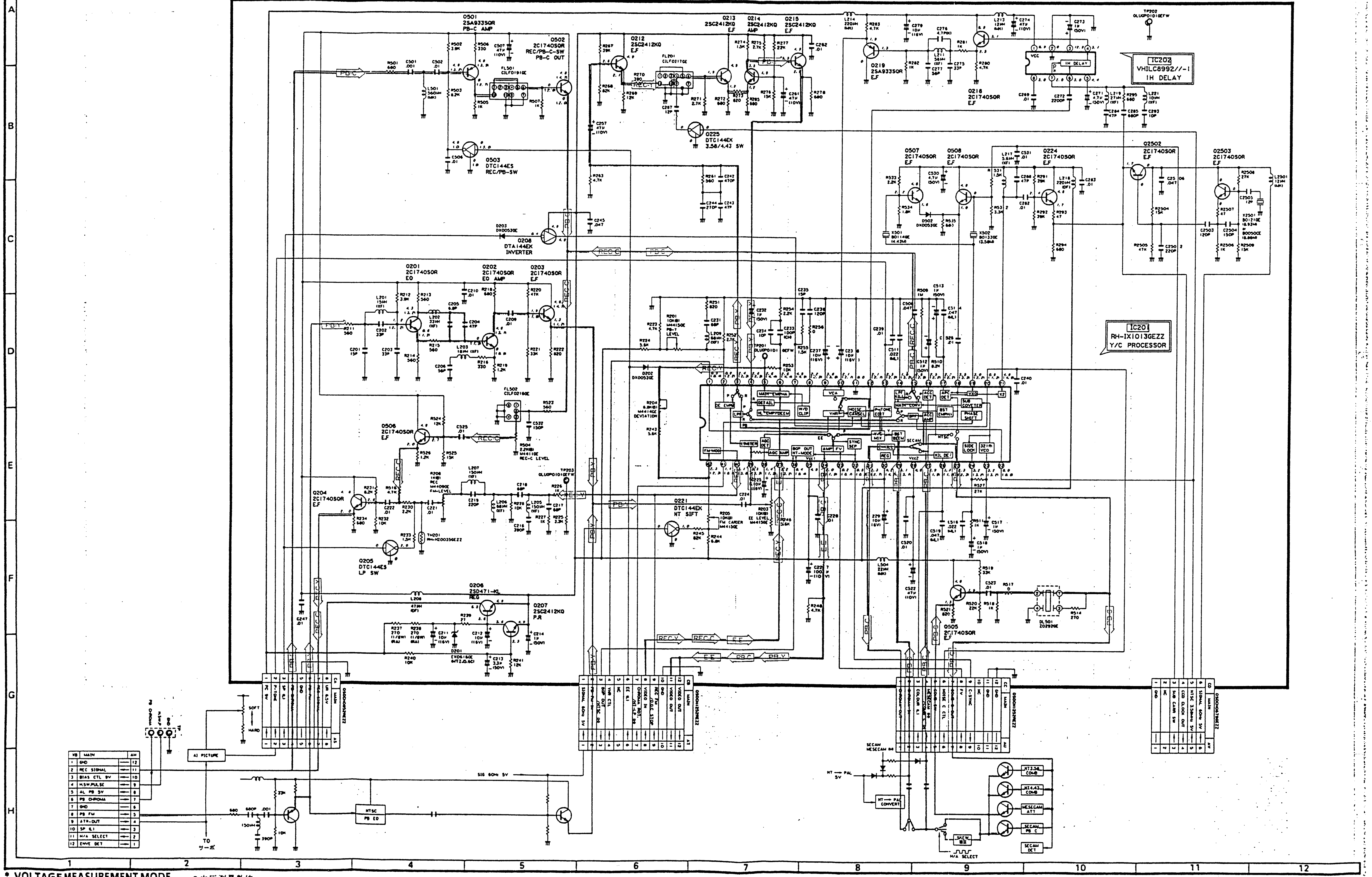
PB .... Parentheses (   )

● 电压测量数值

再现：括弧内的数值

Y/C CIRCUIT (VC-H96/VC-H96ETS/VC-H980/VC-H980ETS)

Y/C(亮度/色度)电路 (VC-H96/VC-H96ETS/VC-H980/VC-H980ETS)


A
B
C
D
E
F
G
H
1
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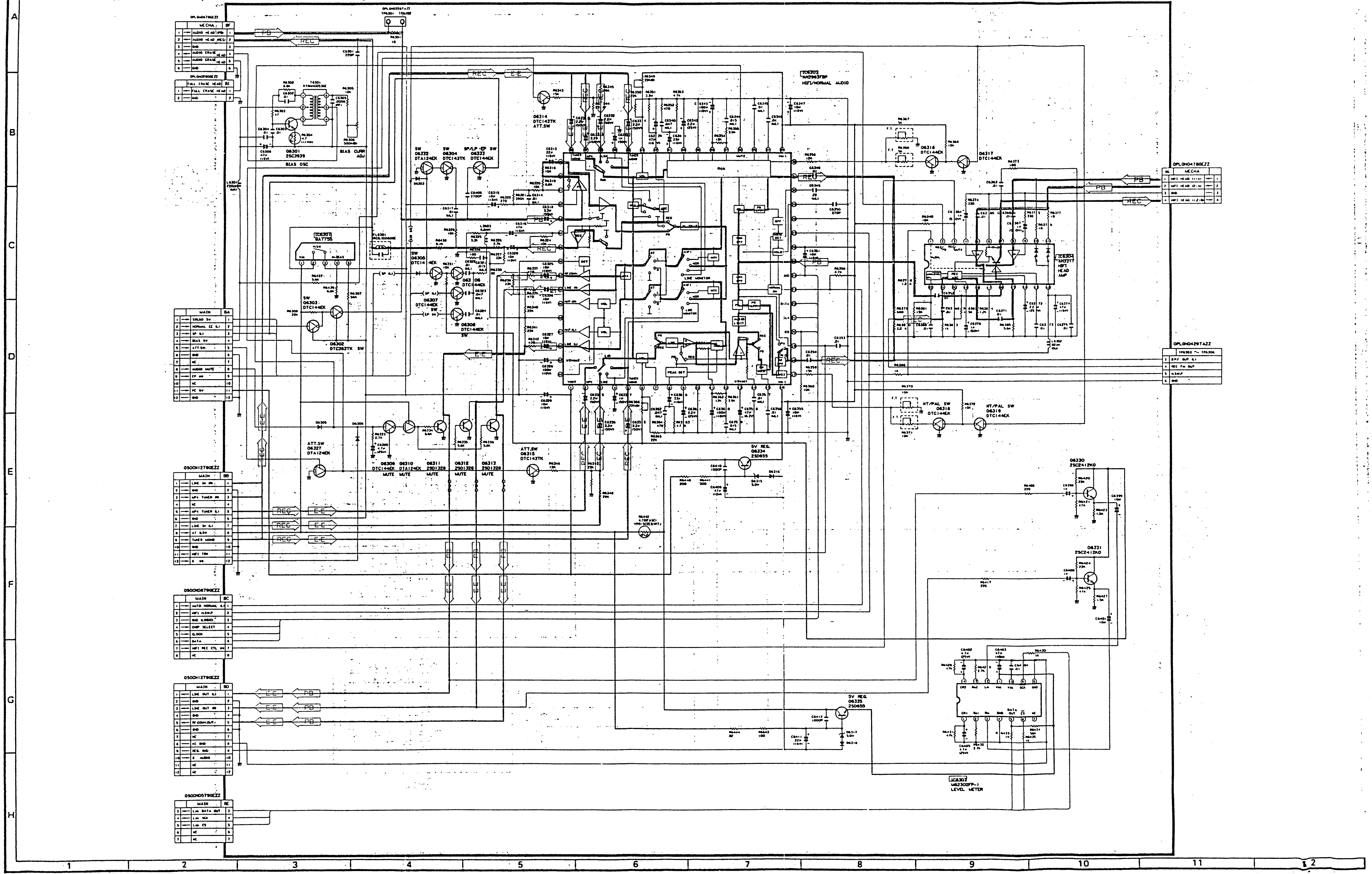
11
12
IC201 RH-IX1013GEZZ Y/C PROCESSOR
IC202 VHILC8992//-1 1H DELAY
Q501 2SA933SQR PB-C AMP
Q502 2SC1740SQR REC/PB-C-SW PB-C OUT
Q503 DTC144ES REC/PB-SW
Q201 2SC1740SQR EO
Q202 2SC1740SQR EO AMP
Q203 2SC1740SQR E.F
Q204 2SC1740SQR E.F
Q205 DTC144ES LP SW
Q206 2SD471-KL REG
Q207 2SC2412KQ P.R
Q208 DTA144EK INVERTER
Q212 2SC2412KQ E.F
Q213 2SC2412KQ
Q214 2SC2412KQ AMP
Q215 2SC2412KQ E.F
Q218 2SC1740SQR E.F
Q219 2SA933SQR E.F
Q221 DTC144EK NT SIFT
Q224 2SC1740SQR E.F
Q225 DTC144EK 3.58/4.43 SW
Q505 2SC1740SQR
Q506 2SC1740SQR E.F
Q507 2SC1740SQR E.F
Q508 2SC1740SQR E.F
Q2502 2SC1740SQR E.F
Q2503 2SC1740SQR E.F
PB-C
REC-C
REC-Y
PB-Y
EE
VB MAIN
AM
GND
REC SIGNAL
BIAS CTL 9V
H.SW.PULSE
AL PB 5V
PB CHROMA
PB FM
ATR-OUT
SP EL
H/A SELECT
ENVE DET
TO サーボ
NTSC PB EO
AI PICTURE
SOFT
HARD
NT→PAL
SECAM
NT 3.58 COMB
NT 4.43 COMB
SECAM ATT
SECAM PB C
SECAM DET
H/A SELECT

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

Hi-Fi CIRCUIT (VC-H91/VC-H91ETS)

Hi-Fi（高保真）电路 (VC-H91/VC-H91ETS)


A
B
C
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11
12
MECHA BF
MAIN BA
MAIN BB
MAIN BC
MAIN BD
MAIN BE
MECHA BG
IC6301 BA7756
IC6303 AN3963FBP HIFI/NORMAL AUDIO
IC6304 AN3317 HIFI HEAD AMP
IC6307 M62302FP-1 LEVEL METER
Q6301 2SC3939
BIAS OSC
BIAS CURR ADJ
5V REG. Q6334 2SD655
5V REG. Q6335 2SD655
Q6330 2SC2412KQ
Q6331 2SC2412KQ
HT/PAL SW
ATT.SW
MUTE
REC
PB
E-E

*** VOLTAGE MEASUREMENT MODE**

PB .... Parentheses ( )

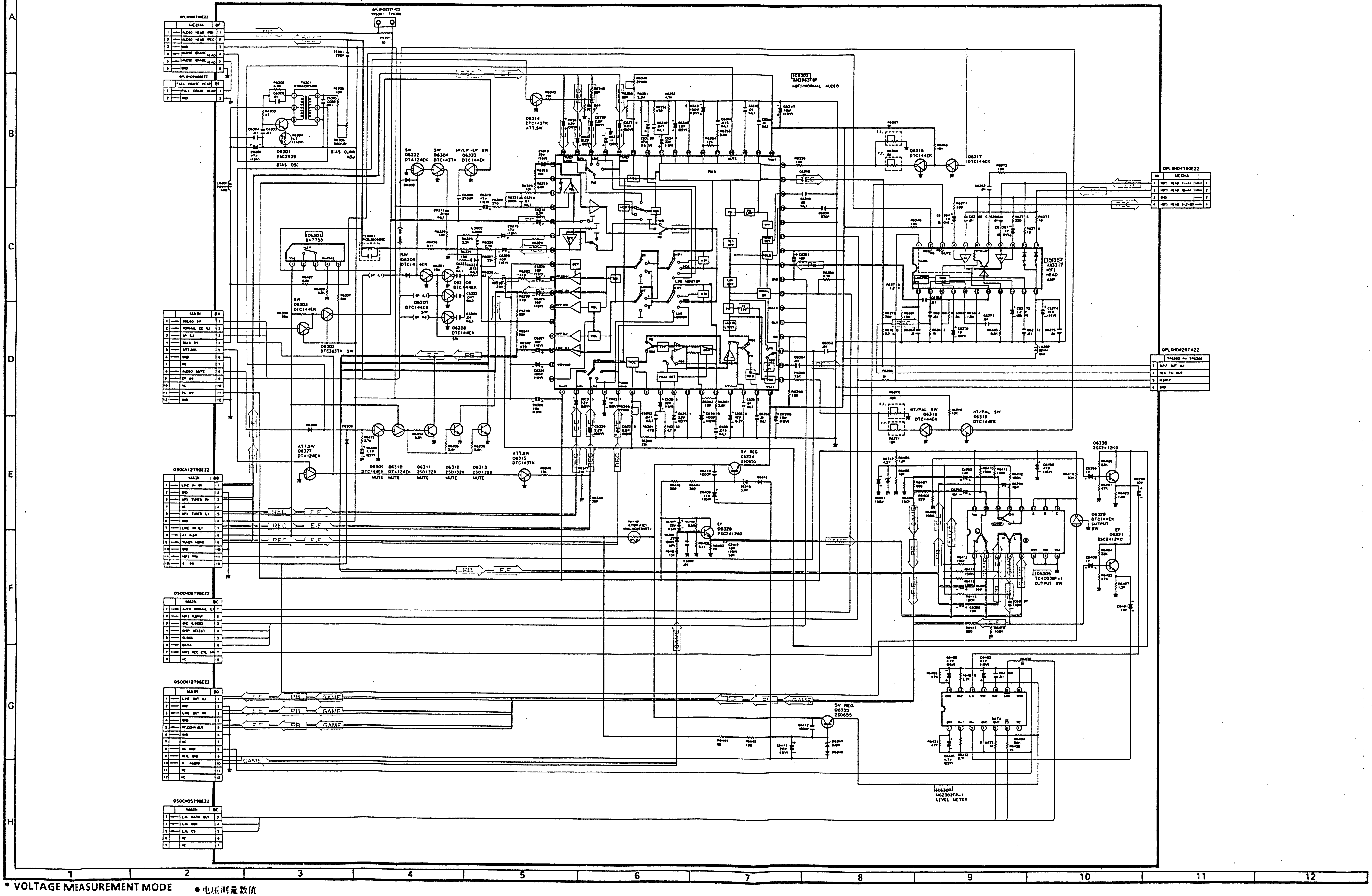
REC ...... Without Parentheses

● 电压测量数值

再现：括弧内的数值

记录：无括弧的数值

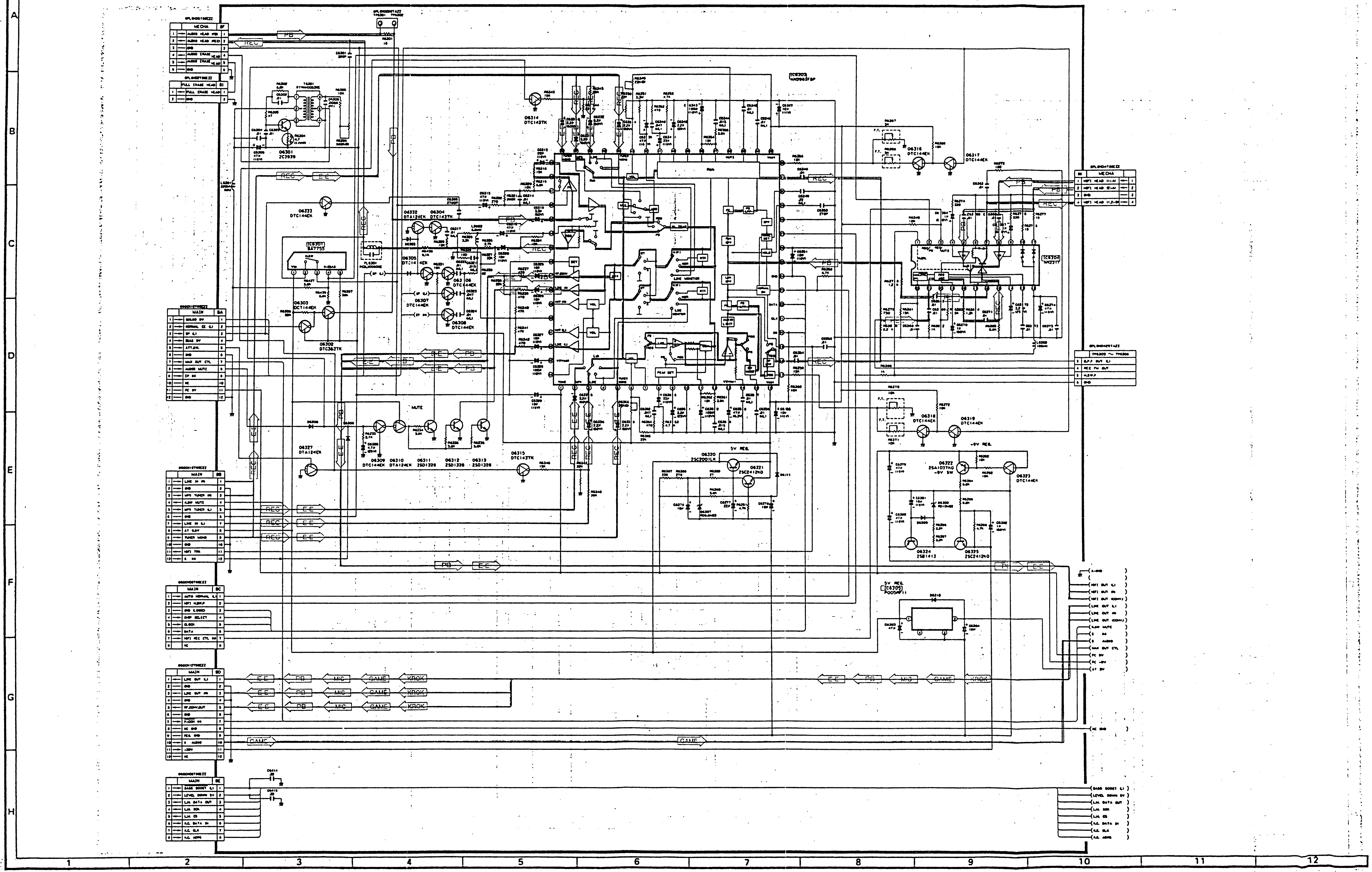
Hi-Fi CIRCUIT (VC-H96/VC-H96ETS)
Hi-Fi(高保真)电路 (VC-H96/VC-H96ETS)


IC6301
BA7755
BIAS OSC
IC6302
AN3963FBP
HIFI/NORMAL AUDIO
IC6304
AN3337
HIFI HEAD AMP
IC6306
TC4053BF-1
OUTPUT SW
IC6307
M62307FP-1
LEVEL METER
5V REG.
Q6334
2SD655
5V REG.
Q6335
2SD655
REC
PB
E-E
GAME
MECHA
MAIN
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

●电压测量数值
再现：括弧内的数值
记录：无括弧的数值

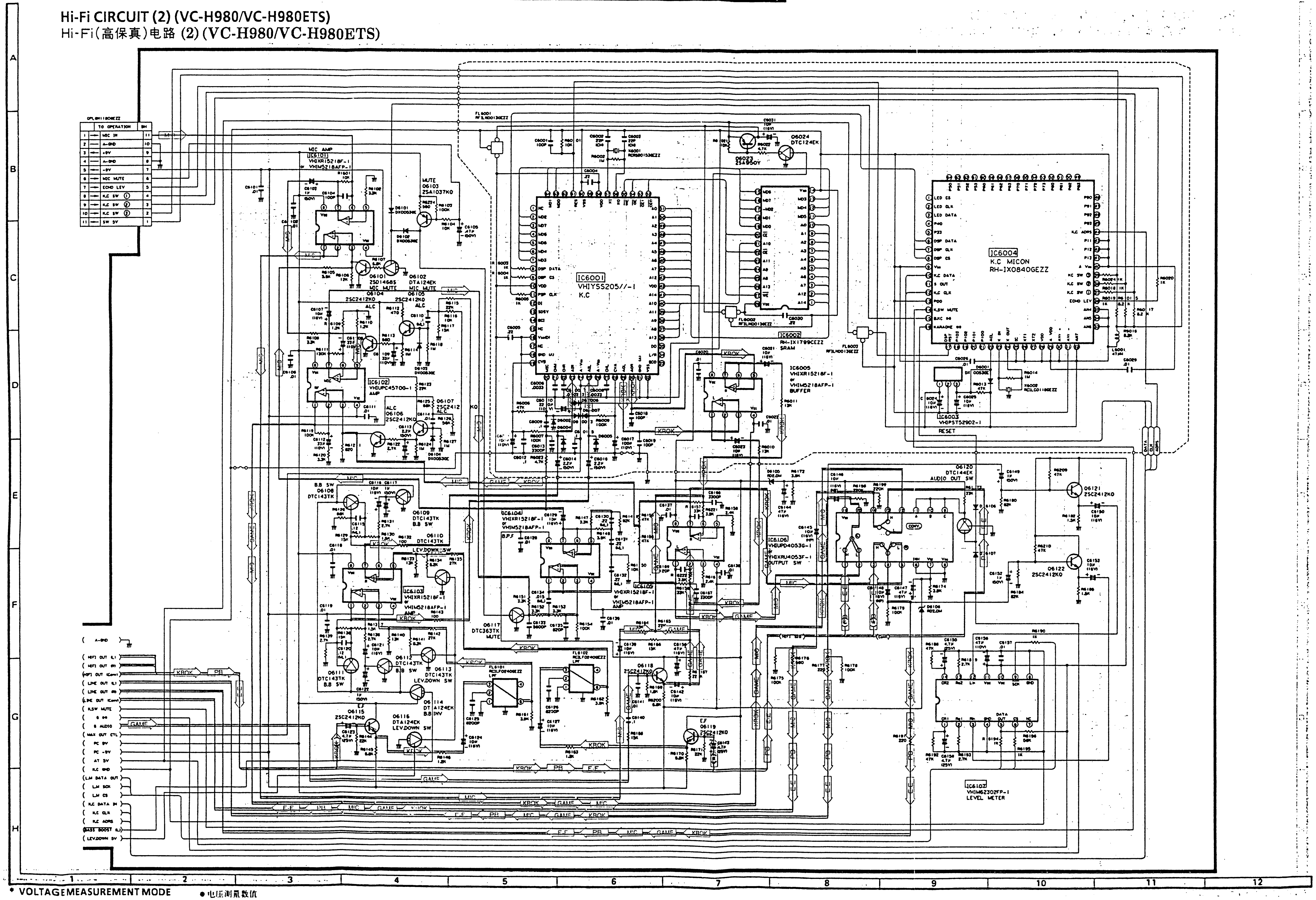
Hi-Fi CIRCUIT (1) (VC-H980/VC-H980ETS)
Hi-Fi(高保真)电路 (1)(VC-H980/VC-H980ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
MECHA
FULL ERASE HEAD
PB
REC
E-E
Q6301
2SC2979
IC6301
BA7755
Q6333
DTC144EK
Q6314
DTC143TK
IC6303
Q6332
DTA124EK
Q6304
DTC143TK
Q6305
Q6307
DTC144EK
Q6303
DTC144EK
Q6302
DTC363TK
Q6308
DTC144EK
MAIN
MUTE
Q6327
DTA124EK
Q6309
DTC144EK
Q6310
DTA124EK
Q6311
2SD1326
Q6312
2SD1326
Q6313
2SD1326
Q6315
DTC143TK
5V REG.
Q6320
2SC2001LK
Q6321
2SC2412KQ
Q6316
DTC144EK
Q6317
DTC144EK
IC6304
AN3711
Q6318
DTC144EK
Q6319
DTC144EK
-9V REG.
Q6322
2SA1037KQ
-9V SW
Q6323
DTC144EK
Q6324
2SB1413
Q6325
2SC2412KQ
IC6305
LINE MONITOR
PEAK DET
MIC
GAME
KROK

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses (   )

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

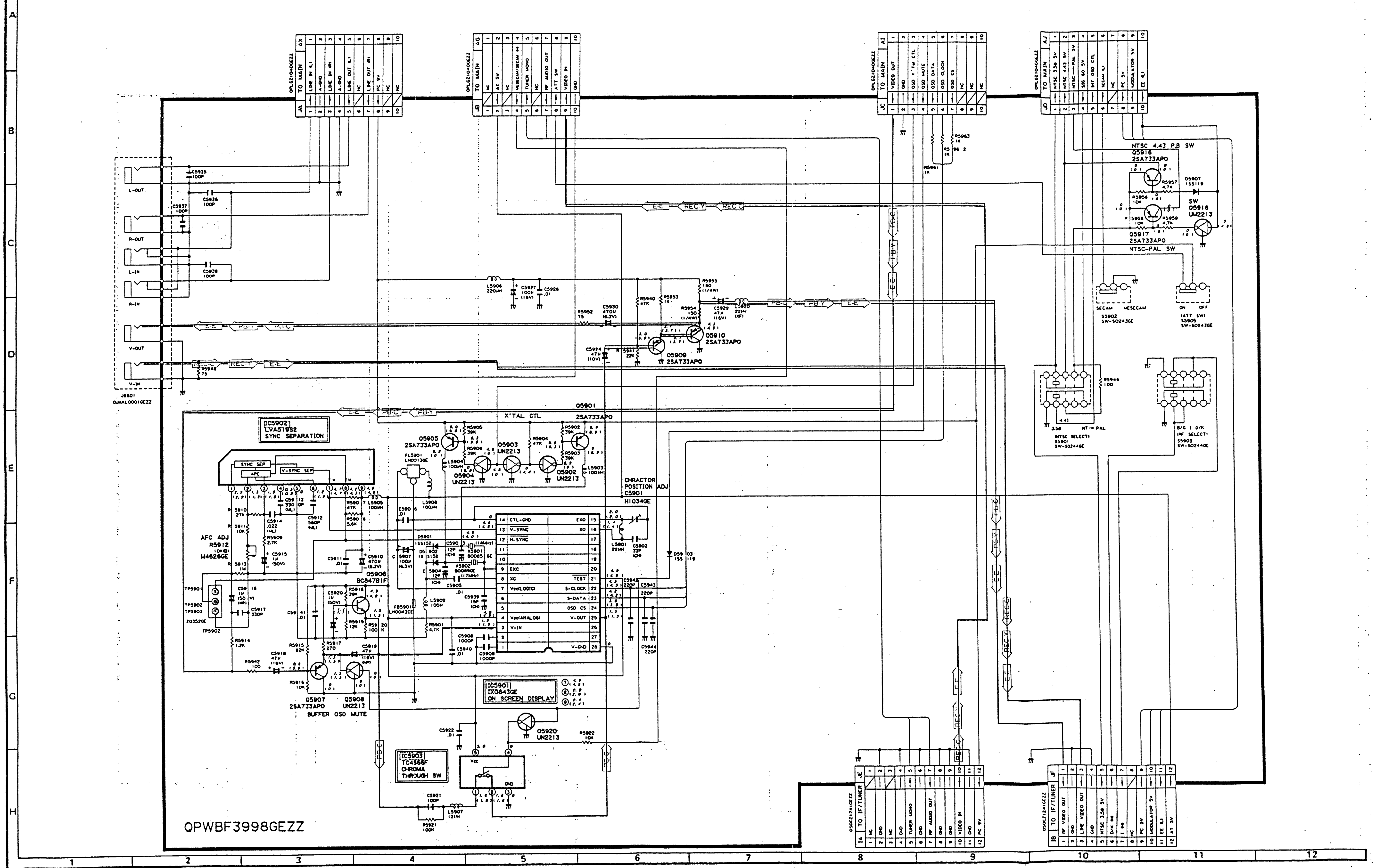
Hi-Fi CIRCUIT (2) (VC-H980/VC-H980ETS)
Hi-Fi(高保真)电路 (2) (VC-H980/VC-H980ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
TO OPERATION
MIC IN
A-GND
+9V
-9V
MIC MUTE
ECHO LEV
K.C SW ①
K.C SW ②
K.C SW ③
SW 5V
MIC AMP
IC6101
VHIXR1521 8F-1
or VHIM5218AFP-1
MUTE
Q6103
2SA1037K0
Q6101
2SD1468S
MIC MUTE
Q6102
DTA124EK
MIC MUTE
Q6104
2SC2412K0
ALC
Q6105
2SC2412K0
ALC
IC6102
VHIUPC4570G-1
AMP
Q6107
2SC2412
ALC
Q6106
2SC2412K0
ALC
FL6001
IC6001
VHIYSS205//-1
K.C
Q6024
DTC124EK
Q6023
2SA950Y
IC6002
RH-IX1799CEZZ
SRAM
FL6002
FL6003
IC6004
K.C MICON
RH-IX0840GEZZ
IC6003
VHIPST52902-1
RESET
IC6005
VHIXR1521 8F-1
or VHIM5218AFP-1
BUFFER
Q6108
DTC143TK
B.B SW
Q6109
DTC143TK
B.B SW
Q6110
DTC143TK
LEV.DOWN SW
IC6103
VHIXR1521 8F-1
or VHIM5218AFP-1
AMP
IC6104
VHIXR1521 8F-1
or VHIM5218AFP-1
B.P.F
Q6117
DTC363TK
MUTE
IC6105
VHIXR1521 8F-1
or VHIM5218AFP-1
AMP
IC6106
VHIUPD4053G-1
or VHIXRU4053F-1
OUTPUT SW
Q6120
DTC144EK
AUDIO OUT SW
Q6121
2SC2412K0
Q6122
2SC2412K0
Q6111
DTC143TK
B.B SW
Q6112
DTC143TK
B.B SW
Q6113
DTC143TK
LEV.DOWN SW
Q6114
DTA124EK
B.B INV
Q6115
2SC2412K0
E.F
Q6116
DTA124EK
LEV.DOWN SW
FL6101
FL6102
Q6118
2SC2412K0
Q6119
2SC2412K0
E.F
IC6107
VHIM62302FP-1
LEVEL METER
A-GND
HIFI OUT (L)
HIFI OUT (R)
HIFI OUT (Cont)
LINE OUT (L)
LINE OUT (R)
LINE OUT (Cont)
KSW MUTE
GAME
MAX OUT CTL
PC 9V
PC -9V
AT 5V
K.C GND
LM DATA OUT
LM SCK
LM CS
K.C DATA IN
K.C CLK
K.C ADRS
BASS BOOST (L)
LEV.DOWN 5V
MIC
KBOK
GAME
PB
E-E

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

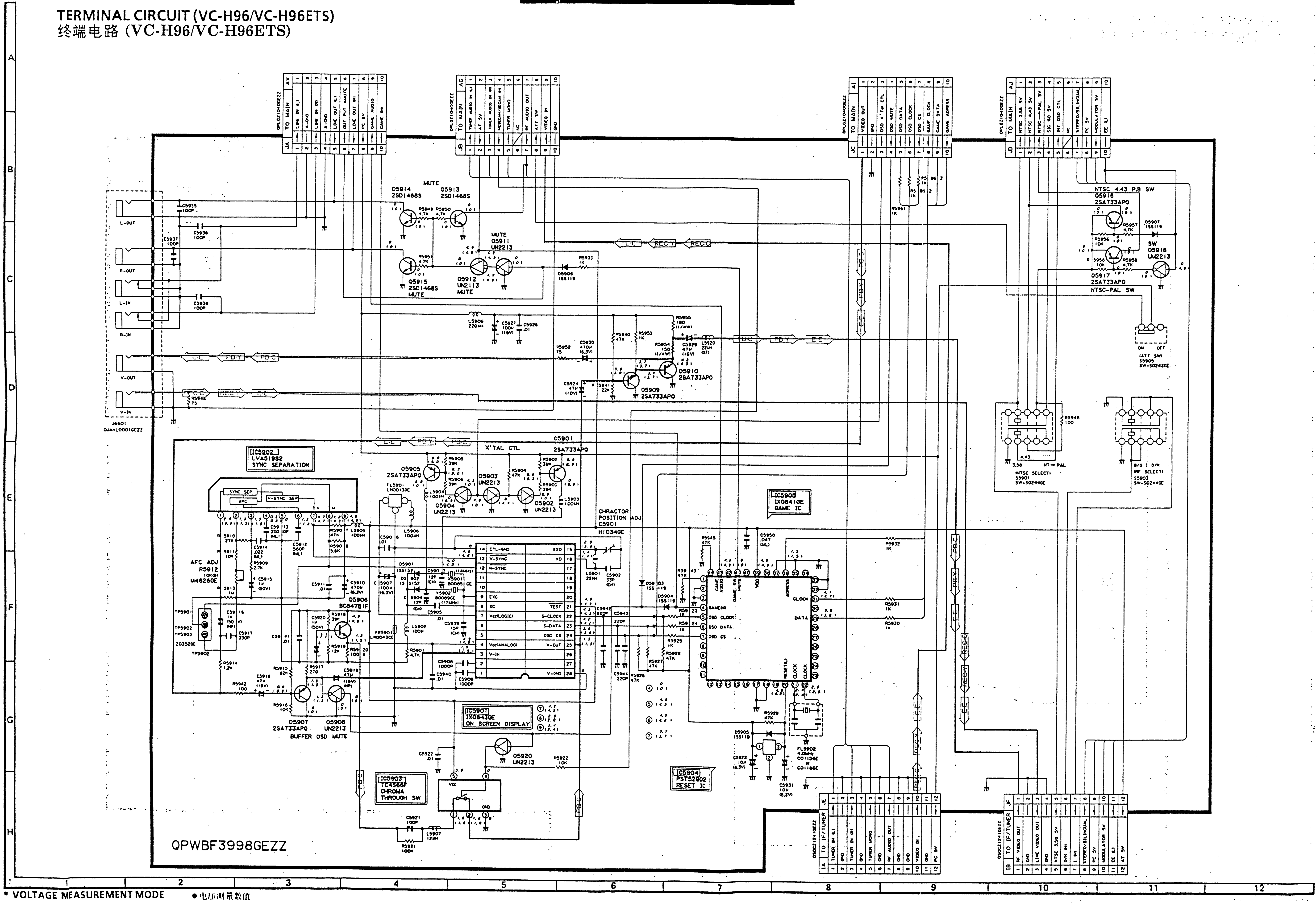
TERMINAL CIRCUIT (VC-H91/VC-H91ETS)
终端电路 (VC-H91/VC-H91ETS)


TO MAIN
LINE IN (L)
A-GND
LINE IN (R)
LINE OUT (L)
LINE OUT (R)
PC 9V
NC
AT 5V
NTSC/SECAM
TUNER MONO
RF AUDIO OUT
ATT SW
VIDEO IN
VIDEO OUT
OSD MUTE
OSD DATA
OSD CLOCK
OSD CS
NTSC 3.58 5V
NTSC 4.43 5V
NTSC-PAL 5V
SIG SD 5V
INT OSD CTL
MODULATOR 5V
EE (L)
L-OUT
R-OUT
L-IN
R-IN
V-OUT
V-IN
J5601
QJAKL0001GEZZ
C5935 100P
C5936 100P
C5937 100P
C5938 100P
R5948 75
E-E
PB-Y
PB-C
REC-C
REC-Y
NTSC 4.43 P.B SW
Q5916 2SA733APO
Q5917 2SA733APO
Q5918 UM2213
D5907 1SS119
NTSC-PAL SW
SECAM
MESECAM
S5902 SW-S0243GE
ON
OFF
(ATT SW)
S5905 SW-S0243GE
3.58
4.43
NT→PAL
(NTSC SELECT)
S5901 SW-S0244GE
B/G I D/K
(RF SELECT)
S5903 SW-S0244GE
L5906 220μH
C5927 100μ (16V)
C5926 .01
R5955 180 (1/4W)
R5940 47K
R5953 1K
R5954 150 (1/4W)
C5929 47μ (16V)
L5920 22μH
R5952 75
C5930 470μ (6.3V)
C5924 47μ (10V)
R5941 22K
Q5910 2SA733APO
Q5909 2SA733APO
Q5901 2SA733APO
X'TAL CTL
IC5902 LVA51952 SYNC SEPARATION
SYNC SEP
APC
V-SYNC SEP
Q5905 2SA733APO
Q5903 UN2213
Q5904 UN2213
Q5902 UN2213
FL5901 LN00130E
L5904 100μH
L5903 100μH
L5905 100μH
L5908 100μH
CHRACTOR POSITION ADJ
C5901 H10340E
AFC ADJ
R5912 10K(B) M4626GE
R5910 27K
R5911 10K
R5913 1M
R5909 2.7K
C5914 .022
C5915 1μ (50V)
C5912 560P
C5911 .01
C5910 470μ (6.3V)
Q5906 BC847B1F
D5901 1SS152
D5902 1SS152
C5907 100μ (6.3V)
X5901 B0065GE (14MHz)
X5902 B00690E (17MHz)
C5905 .01
C5939 15P
FB5901 LN0043CE
L5902 100μ
R5901 4.7K
C5908 1000P
C5909 1000P
C5940 .01
L5901 22μH
C5902 33P
D5903 1SS119
C5942 220P
C5943 220P
C5944 220P
CTL-GND
V-SYNC
H-SYNC
EXC
XC
Vcc(LOGIC)
Vcc(ANALOG)
V-IN
EXO
XO
TEST
S-CLOCK
S-DATA
OSD CS
V-OUT
V-GND
TP5901
TP5902
TP5903
Z03520E
C5917 330P
R5914 1.2K
R5942 100
C5918 47μ (16V)
R5915 82K
R5916 10K
R5917 270
C5919 47μ (16V)
C5920 1μ (50V)
R5918 39K
R5919 12K
Q5907 2SA733APO
Q5908 UN2213
BUFFER OSD MUTE
IC5901 IX0843GE ON SCREEN DISPLAY
Q5920 UN2213
R5922 10K
C5922 .01
IC5903 TC4S66F CHROMA THROUGH SW
Vcc
GND
C5921 100P
R5921 100K
L5907 12μH
TO IF/TUNER
TUNER MONO
RF AUDIO OUT
RF VIDEO OUT
LINE VIDEO OUT
NTSC 3.58 5V
D/K 9V
I 9V
PC 5V
MODULATOR 5V
EE (L)
AT 5V
QPWBF3998GEZZ
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

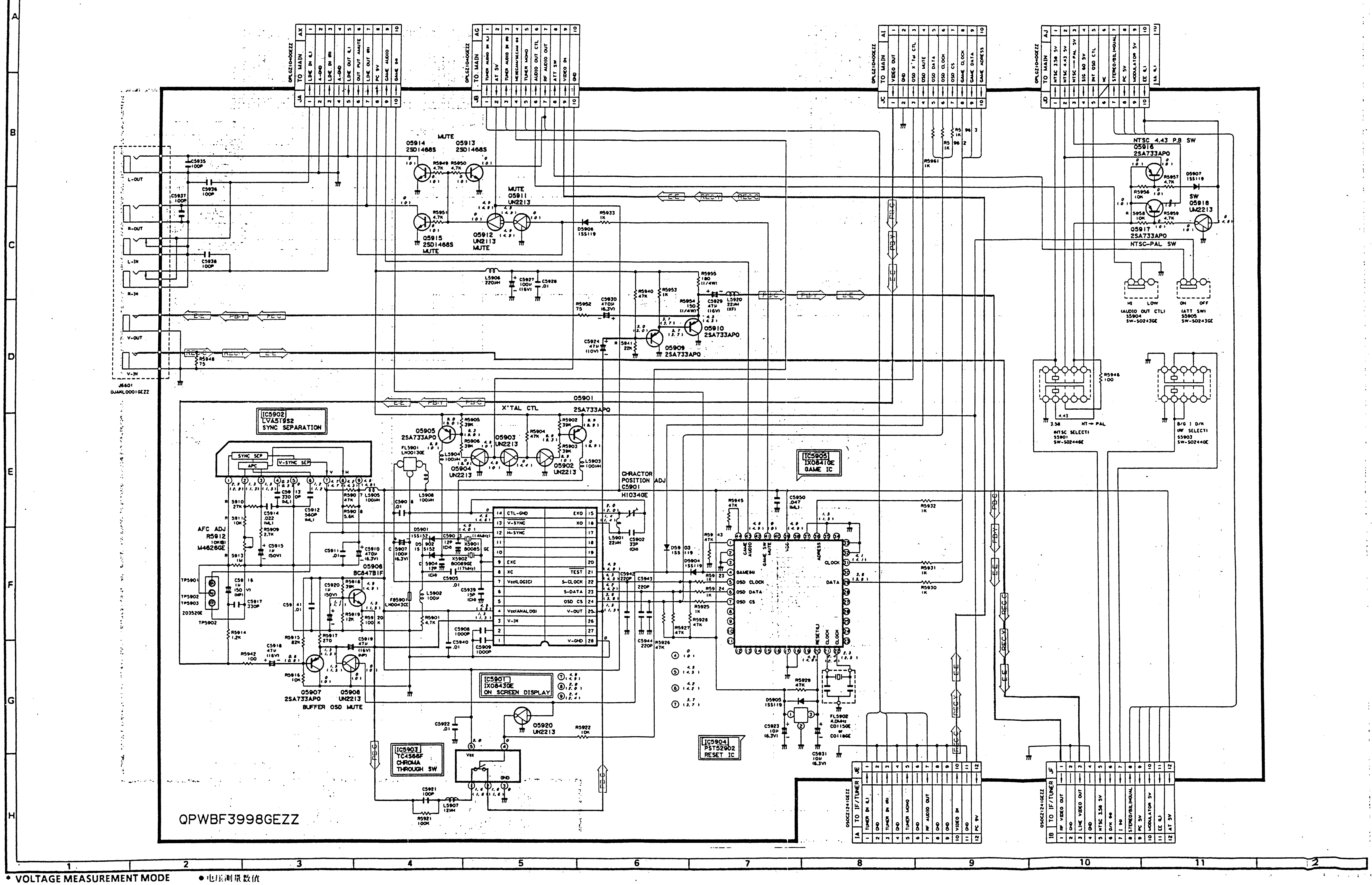
TERMINAL CIRCUIT (VC-H96/VC-H96ETS)
终端电路 (VC-H96/VC-H96ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
JA
AX
TO MAIN
LINE IN (L)
LINE IN (R)
LINE OUT (L)
LINE OUT (R)
PC 5V
GAME AUDIO
JB
AG
TUNER AUDIO IN (L)
AT 5V
NC
RF AUDIO OUT
ATT SW
VIDEO IN
GND
JC
AI
VIDEO OUT
OSD DATA
OSD CLOCK
OSD CS
GAME DATA
GAME ADRESS
JD
AJ
NTSC 3.58 5V
NTSC 4.43 5V
NTSC → PAL 5V
SIG 60 5V
INT OSD CTL
STEREO/BILINGUAL
PC 5V
MODULATOR 5V
EE (L)
MUTE
Q5914
2SD1468S
Q5913
2SD1468S
Q5915
2SD1468S
MUTE
Q5911
UN2213
Q5912
UN2113
MUTE
L-OUT
R-OUT
L-IN
R-IN
V-OUT
V-IN
J6601
QJAKL0001GEZZ
E-E
REC-Y
REC-C
PB-C
PB-Y
Q5910
2SA733AP0
Q5909
2SA733AP0
NTSC 4.43 P.B SW
Q5916
2SA733AP0
Q5907
1SS119
SW
Q5918
UM2213
Q5917
2SA733AP0
NTSC-PAL SW
ON OFF
(ATT SW)
S5905
SW-S0243GE
4.43
3.58
NT → PAL
(NTSC SELECT)
S5901
SW-S0244GE
B/G I D/K
(RF SELECT)
S5903
SW-S0244GE
IC5902
LVA519S2
SYNC SEPARATION
SYNC SEP
APC
V-SYNC SEP
X'TAL CTL
Q5901
2SA733AP0
Q5905
2SA733AP0
Q5903
UN2213
Q5904
UN2213
Q5902
UN2213
CHRACTOR POSITION ADJ
C5901
H10340E
IC5905
IX0841GE
GAME IC
AFC ADJ
R5912
M46260E
Q5906
BC847B1F
CTL-GND
V-SYNC
H-SYNC
EXC
XC
Vcc(LOGIC)
Vcc(ANALOG)
V-IN
EXO
XO
TEST
S-CLOCK
S-DATA
OSD CS
V-OUT
V-GND
GAME SW
OSD CLOCK
OSD DATA
ADRESS
CLOCK
DATA
RESET
TP5901
TP5902
TP5903
Q5907
2SA733AP0
Q5908
UN2213
BUFFER OSD MUTE
IC5901
IX0843GE
ON SCREEN DISPLAY
Q5920
UN2213
IC5903
TC4S66F
CHROMA THROUGH SW
Vcc
GND
IC5904
PST52902
RESET IC
FL5902
4.0MHz
C01156E
C01186E
QPWBF3998GEZZ
JE
1A
TO IF/TUNER
TUNER IN (L)
TUNER IN (R)
TUNER MONO
RF AUDIO OUT
VIDEO IN
PC 9V
JF
1B
TO IF/TUNER
RF VIDEO OUT
LINE VIDEO OUT
NTSC 3.58 5V
D/K
STEREO/BILINGUAL
PC 5V
MODULATOR 5V
EE (L)
AT 5V

- VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

TERMINAL CIRCUIT (VC-H980)
终端电路 (VC-H980)


AX
OPLGZ1040GEZZ
TO MAIN
LINE IN (L)
A-GND
LINE IN (R)
A-GND
LINE OUT (L)
OUT PUT AMUTE
LINE OUT (R)
PC 9V
GAME AUDIO
GAME 9V
JA
AG
OPLGZ1040GEZZ
TO MAIN
TUNER AUDIO IN (L)
AT 5V
TUNER AUDIO IN (R)
MESECAM/SECAM 9V
TUNER MONO
AUDIO OUT CTL
RF AUDIO OUT
ATT SW
VIDEO IN
GND
JB
AI
OPLGZ1040GEZZ
TO MAIN
VIDEO OUT
GND
OSD X'TAL CTL
OSD MUTE
OSD DATA
OSD CLOCK
OSD CS
GAME CLOCK
GAME DATA
GAME ADRESS
JC
AJ
OPLGZ1040GEZZ
TO MAIN
NTSC 3.58 5V
NTSC 4.43 5V
NTSC → PAL 5V
SIG 60 5V
INT OSD CTL
NC
STEREO/BILINGUAL
PC 5V
MODULATOR 5V
EE (L)
JD
MUTE
Q5914 2SD1468S
Q5913 2SD1468S
MUTE Q5911 UN2213
Q5915 2SD1468S MUTE
Q5912 UN2113 MUTE
D5906 1SS119
L-OUT
R-OUT
L-IN
R-IN
V-OUT
V-IN
J5601 QJAKL0001GEZZ
E-E
REC-R
REC-C
PB-C
PB-Y
PB-T
Q5910 2SA733APO
Q5909 2SA733APO
NTSC 4.43 P.B SW
Q5916 2SA733APO
Q5907 1SS119
SW Q5918 UN2213
Q5917 2SA733APO
NTSC-PAL SW
HI LOW (AUDIO OUT CTL) S5904 SW-S0243GE
ON OFF (ATT SW) S5905 SW-S0243GE
3.58 NT→PAL (NTSC SELECT) S5901 SW-S0244GE
4.43
B/G I D/K (RF SELECT) S5903 SW-S0244GE
Q5901 2SA733APO
X'TAL CTL
IC5902 LV4519S2 SYNC SEPARATION
SYNC SEP
APC
V-SYNC SEP
Q5905 2SA733APO
Q5903 UN2213
Q5904 UN2213
Q5902 UN2213
FL5901 LH0013GE
CHRACTOR POSITION ADJ C5901 H10340E
IC5905 IX0841GE GAME IC
AFC ADJ R5912 10K(B) M4626GE
TP5901 TP5902 TP5903 Z03520E
Q5906 BC847B1F
Q5907 2SA733APO BUFFER
Q5908 UN2213 OSD MUTE
IC5901 IX0843GE ON SCREEN DISPLAY
CTL-GND
V-SYNC
H-SYNC
EXC
XC
Vcc(LOGIC)
Vcc(ANALOG)
V-IN
EXO
XO
TEST
S-CLOCK
S-DATA
OSD CS
V-OUT
V-GND
GAME(9)
OSD CLOCK
OSD DATA
OSD CS
CLOCK
DATA
ADRESS
RESET
Q5920 UN2213
IC5903 TC4566F CHROMA THROUGH SW
IC5904 PST52902 RESET IC
FL5902 4.0MHz C01150E or C0118GE
D5905 1SS119
JE
OSOCZ1241GEZZ
TO IF/TUNER
TUNER IN (L)
GND
TUNER IN (R)
GND
TUNER MONO
GND
RF AUDIO OUT
GND
GND
VIDEO IN
GND
PC 9V
IA
JF
OSOCZ1241GEZZ
TO IF/TUNER
RF VIDEO OUT
GND
LINE VIDEO OUT
GND
NTSC 3.58 5V
D/K 9V
I 9V
STEREO/BILINGUAL
PC 5V
MODULATOR 5V
EE (L)
AT 5V
IB
QPWBF3998GEZZ
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

* VOLTAGE MEASUREMENT MODE

PB .... Parentheses (   )

REC .... Without Parentheses

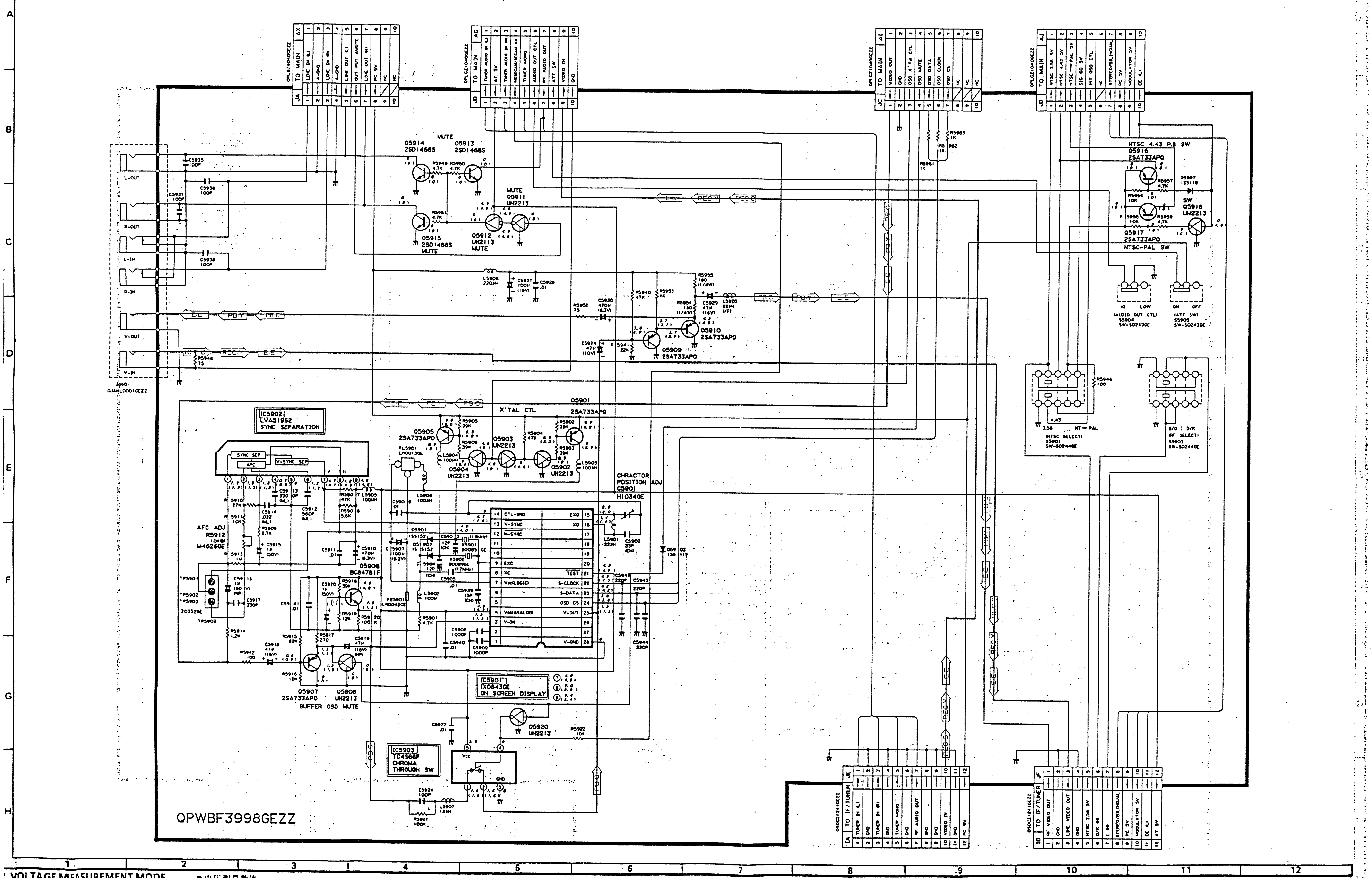
● 电压测量数值

再现：括弧内的数值

记录：无括弧的数值

VC-H91/H91ETS
VC-H96/H96ETS
VC-H980/H980ETS

TERMINAL CIRCUIT (VC-H980ETS)
终端电路 (VC-H980ETS)


A
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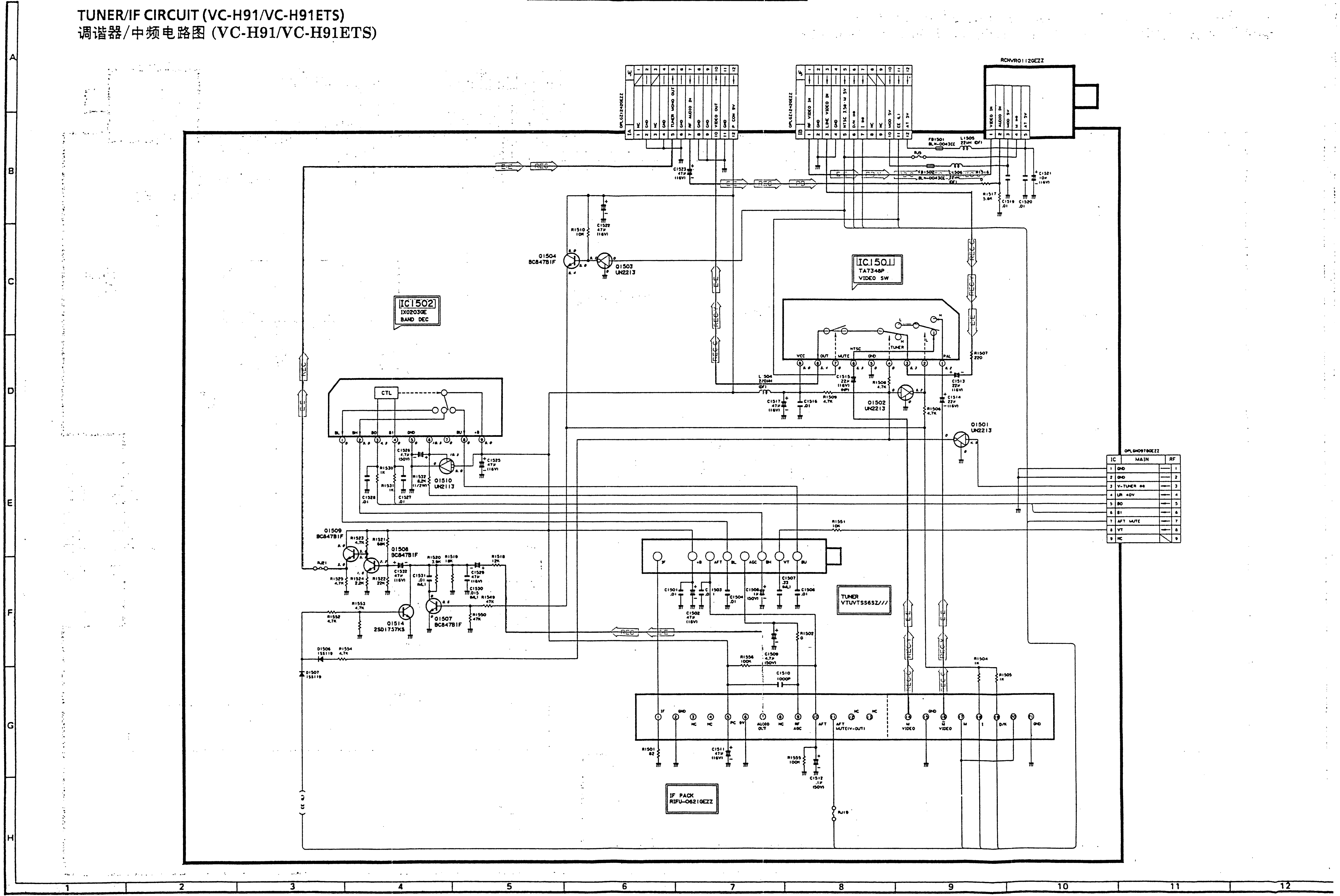
10
11
12
JA
TO MAIN
LINE IN (L)
GND
LINE IN (R)
A-GND
LINE OUT (L)
OUT PUT MUTE
LINE OUT (R)
PC 5V
NC
JB
TO MAIN
ATT 5V
TUNER MONO
AUDIO OUT CTL
RF AUDIO OUT
ATT SW
VIDEO IN
GND
JC
TO MAIN
VIDEO OUT
OSD X'TAL CTL
OSD MUTE
OSD DATA
OSD CLOCK
OSD CS
JD
TO MAIN
NTSC 3.58 5V
NTSC 4.43 5V
NTSC-PAL 5V
INT OSD CTL
STEREO/BILINGUAL
PC 5V
MODULATOR 5V
EE (L)
L-OUT
R-OUT
L-IN
R-IN
V-OUT
V-IN
J5901
QJAKL0001GEZZ
MUTE
Q5914
2SD1468S
Q5913
2SD1468S
MUTE
Q5911
UN2213
Q5915
2SD1468S
MUTE
Q5912
UN2213
MUTE
E-E
REC-Y
REC-C
PB-C
PB-Y
Q5910
2SA733AP0
Q5909
2SA733AP0
NTSC 4.43 P.B SW
Q5916
2SA733AP0
Q5918
UM2213
Q5917
2SA733AP0
NTSC-PAL SW
HI
LOW
(AUDIO OUT CTL)
S5904
SW-S0243GE
ON
OFF
(ATT SW)
S5905
SW-S0243GE
3.58
NT→PAL
4.43
(NTSC SELECT)
S5901
SW-S0244GE
B/G I D/K
(RF SELECT)
S5903
SW-S0244GE
Q5901
2SA733AP0
X'TAL CTL
IC5902
LVA510S2
SYNC SEPARATION
SYNC SEP
APC
V-SYNC SEP
Q5905
2SA733AP0
Q5903
UN2213
Q5904
UN2213
Q5902
UN2213
CHRACTOR POSITION ADJ
C5901
HI0340E
AFC ADJ
R5912
M4626GE
Q5906
BC847B1F
CTL-GND
V-SYNC
H-SYNC
EXC
XC
Vcc(LOGIC)
Vcc(ANALOG)
V-IN
EXO
XO
TEST
S-CLOCK
S-DATA
OSD CS
V-OUT
V-GND
TP5901
TP5902
TP5903
Q5907
2SA733AP0
BUFFER
Q5908
UN2213
OSD MUTE
IC5901
IX0843GE
ON SCREEN DISPLAY
Q5920
UN2213
IC5903
TC4S66F
CHROMA
THROUGH SW
Vcc
GND
JE
TO IF/TUNER
TUNER IN (L)
TUNER IN (R)
TUNER MONO
RF AUDIO OUT
VIDEO IN
PC 5V
JF
TO IF/TUNER
RF VIDEO OUT
LINE VIDEO OUT
NTSC 3.58 5V
STEREO/BILINGUAL
PC 5V
MODULATOR 5V
AT 5V
QPWBF3998GEZZ

VOLTAGE MEASUREMENT MODE
PB .... Parentheses( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

TUNER/IF CIRCUIT (VC-H91/VC-H91ETS)
调谐器/中频电路图 (VC-H91/VC-H91ETS)


A
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1
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11
12
IC1502
IX0203GE
BAND DEC
IC1501
TA7348P
VIDEO SW
TUNER
VTUVTS56SZ///
IF PACK
RIFU-0621GEZZ
RCNVR0112GEZZ
QPLGN0978GEZZ
IC
MAIN
RF
1 GND 1
2 GND 2
3 V-TUNER 3
4 UR 40V 4
5 BO 5
6 B1 6
7 AFT MUTE 7
8 VT 8
9 NC 9
Q1504
BC847B1F
Q1503
UN2213
Q1510
UN2113
Q1509
BC847B1F
Q1508
BC847B1F
Q1514
2SD1757KS
Q1507
BC847B1F
Q1502
UN2213
Q1501
UN2213
CTL
E-E
REC
PB
VCC
OUT
MUTE
NTSC
GND
TUNER
PAL
IF
+B
AFT
BL
AGC
BH
VT
BU
M VIDEO
D/K
AUDIO OUT
RF AGC
AFT MUTE(V-OUT)

- VOLTAGE MEASUREMENT MODE

PB .... Parentheses ( )

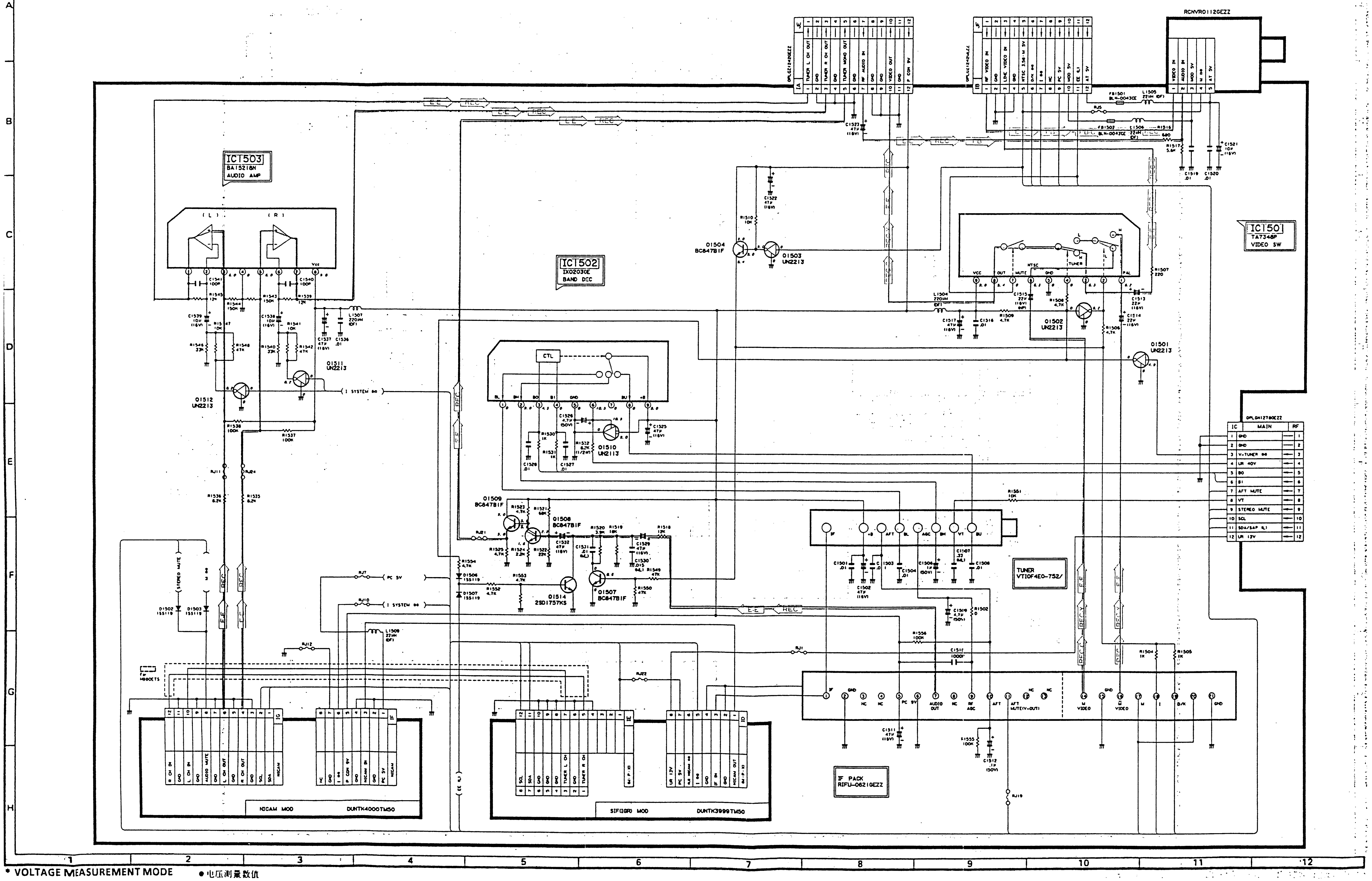
REC .... Without Parentheses

● 电压测量数值

再现：括弧内的数值

记录：无括弧的数值

TUNER/IF CIRCUIT (VC-H96/VC-H96ETS/VC-H980/VC-H980ETS)
调谐器/中频电路图 (VC-H96/VC-H96ETS/VC-H980/VC-H980ETS)


A
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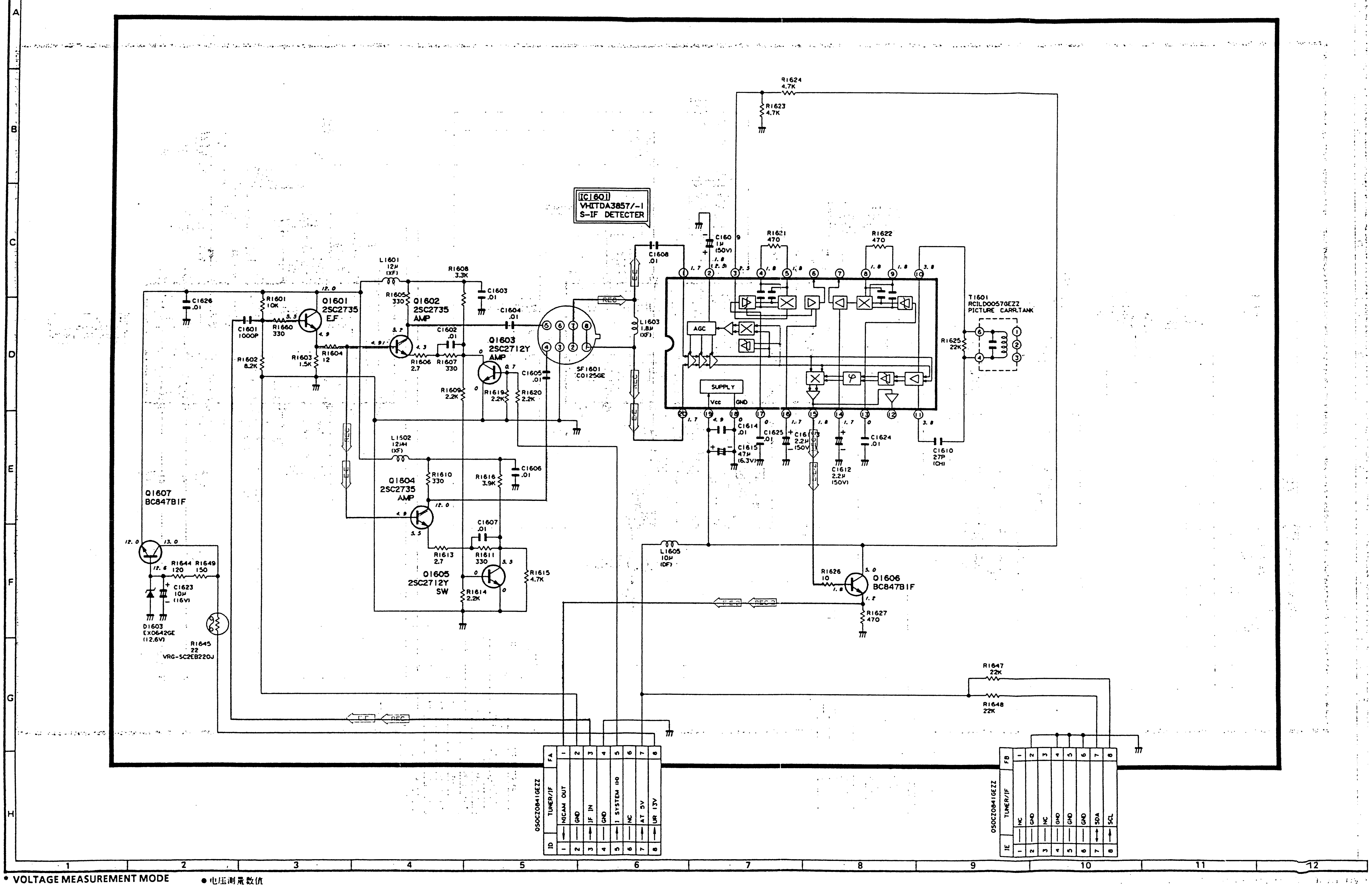
11
12
IC1503
BA15218N
AUDIO AMP
IC1502
IX0203CE
BAND DEC
IC1501
TA7348P
VIDEO SW
CTL
Q1504
BC847BIF
Q1503
UN2213
Q1511
UN2213
Q1512
UN2213
Q1510
UN2113
Q1502
UN2213
Q1501
UN2213
Q1509
BC847BIF
Q1508
BC847BIF
Q1514
2SD1757KS
Q1507
BC847BIF
RCNVR0112GEZZ
TUNER
VTI0F4E0-752/
IF PACK
RIFU-0621GEZZ
NICAM MOD
DUNTK4000TM50
SIF(IGF) MOD
DUNTK3999TM50
QPLGH1280EZZ
IC
MAIN
RF
1 GND
2 GND
3 V-TUNER 9V
4 LR 40V
5 B0
6 B1
7 AFT MUTE
8 VT
9 STEREO MUTE
10 SCL
11 SDA/SAP R.I
12 LR 12V
1A
1B
1E
1D
1G
1F
E-E
REC
PB
PC 5V
SYSTEM
STEREO MUTE

• VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

VC-H91/H91ETS
VC-H96/H96ETS
VC-H980/H980ETS

SIF/MPX CIRCUIT (VC-H96/VC-H96ETS/VC-H980)
SIF/MPX电路 (VC-H96/VC-H96ETS/VC-H980)


A
B
C
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G
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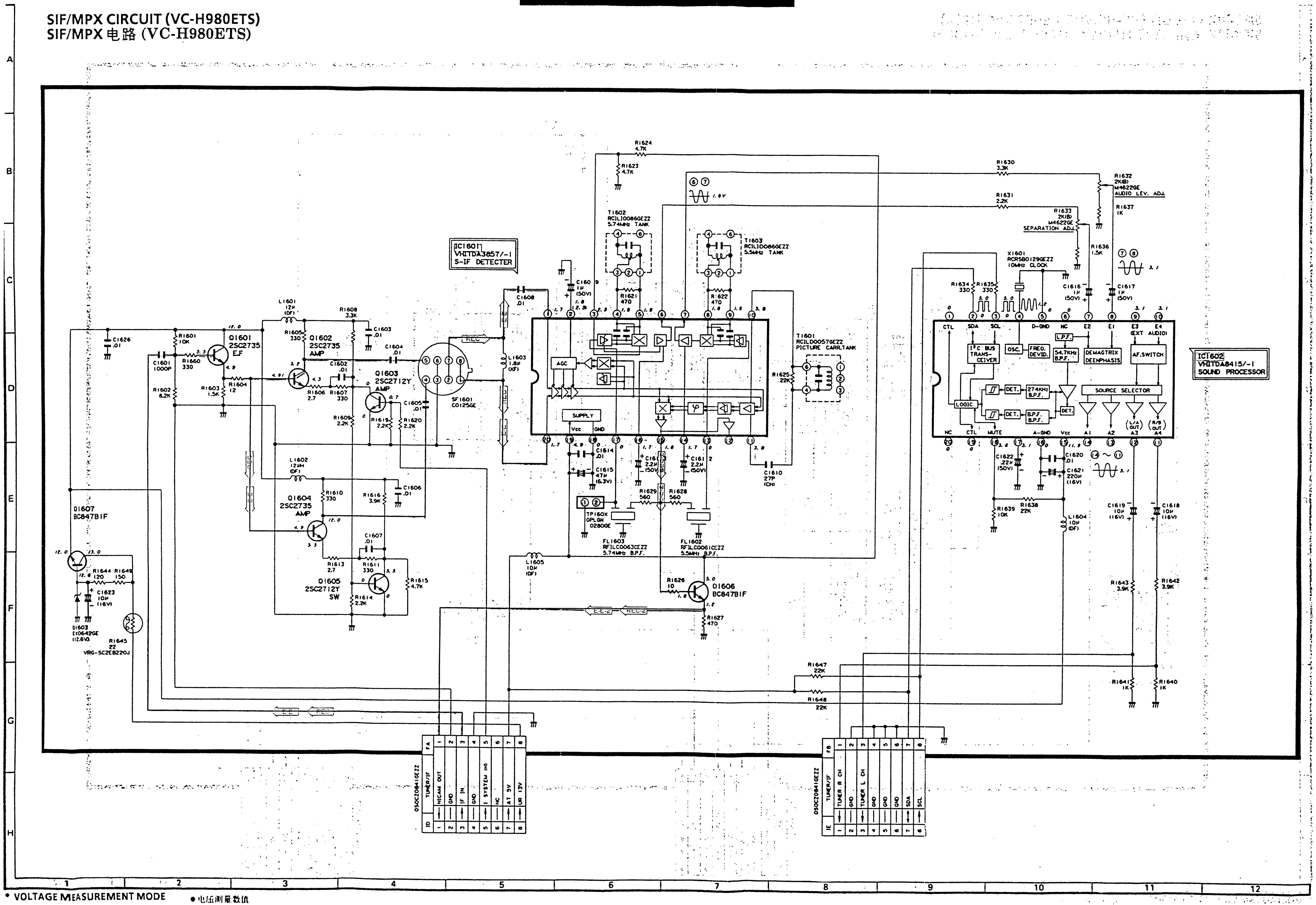
11
12
IC1601
VHITDA3857/-1
S-IF DETECTER
Q1601
2SC2735
E.F
Q1602
2SC2735
AMP
Q1603
2SC2712Y
AMP
Q1604
2SC2735
AMP
Q1605
2SC2712Y
SW
Q1606
BC847B1F
Q1607
BC847B1F
D1603
EX0642GE
(12.6V)
R1645
22
VRG-SC2EB220J
L1601
12µ
(XF)
L1502
12µH
(XF)
L1603
1.8µ
(XF)
L1605
10µ
(DF)
SF1601
C0125GE
T1601
RCILD0057GEZZ
PICTURE CARR.TANK
R1601 10K
R1602 8.2K
R1603 1.5K
R1604 12
R1605 330
R1606 2.7
R1607 330
R1608 3.3K
R1609 2.2K
R1610 330
R1611 330
R1613 2.7
R1614 2.2K
R1615 4.7K
R1616 3.9K
R1619 2.2K
R1620 2.2K
R1621 470
R1622 470
R1623 4.7K
R1624 4.7K
R1625 22K
R1626 10
R1627 470
R1644 120
R1649 150
R1647 22K
R1648 22K
R1660 330
C1601 1000P
C1602 .01
C1603 .01
C1604 .01
C1605 .01
C1606 .01
C1607 .01
C1608 .01
C1609 1µ (50V)
C1610 27P (CH)
C1612 2.2µ (50V)
C1613 2.2µ (50V)
C1614 .01
C1615 47µ (6.3V)
C1623 10µ (16V)
C1624 .01
C1625 .01
C1626 .01
AGC
SUPPLY
Vcc
GND
REC
E-E
12.0
5.5
4.9
5.2
4.91
4.3
0.7
13.0
12.6
1.7
1.8
(2.5)
2.5
3.8
0
5.0
1.2
FA
0S0CZ0841GEZZ
TUNER/IF
ID
NICAM OUT
GND
IF IN
GND
I SYSTEM (H)
NC
AT 5V
UR 13V
FB
IE
NC
GND
NC
GND
GND
GND
SDA
SCL

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC .... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

SIF/MPX CIRCUIT (VC-H980ETS)
SIF/MPX 电路 (VC-H980ETS)


A
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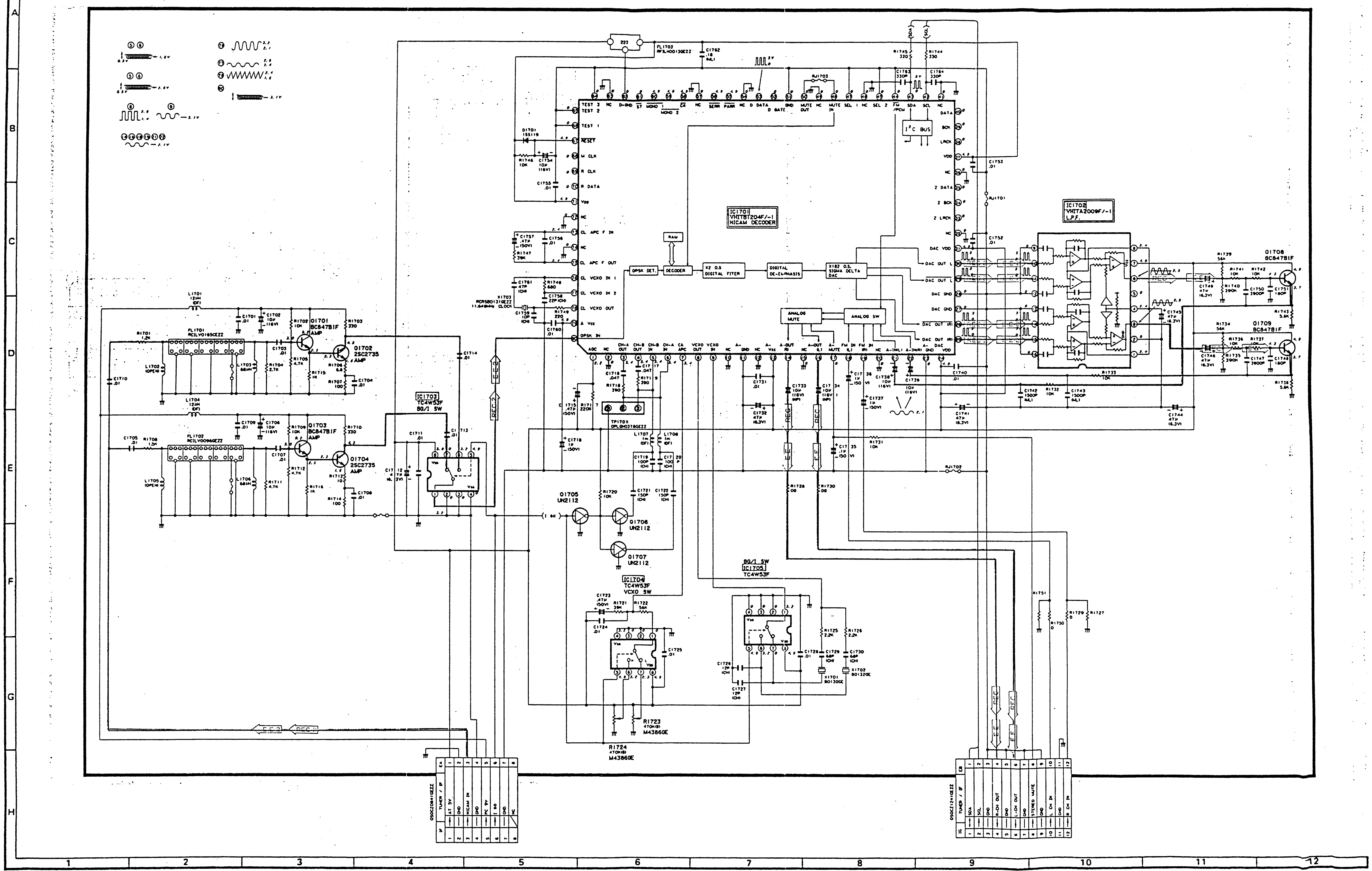
12
IC1601 VHITDA3857/-1 S-IF DETECTER
IC1602 VHITDA8415/-1 SOUND PROCESSOR
Q1601 2SC2735 E.F
Q1602 2SC2735 AMP
Q1603 2SC2712Y AMP
Q1604 2SC2735 AMP
Q1605 2SC2712Y SW
Q1606 BC847BIF
Q1607 BC847BIF
SF1601 CO125GE
T1601 RCILD0057OEZZ PICTURE CARR.TANK
T1602 RCILD0086GEZZ 5.74MHz TANK
T1603 RCILD0086GEZZ 5.5MHz TANK
FL1603 RFILC0063CEZZ 5.74MHz B.P.F.
FL1602 RFILC0061CEZZ 5.5MHz B.P.F.
X1601 RCRSB0129GEZZ 10MHz CLOCK
TP160X OPLGN 02800E
D1603 EX0642GE (12.6V)
R1645 22 VRG-SC2EB220J
R1632 2K(B) M4622GE AUDIO LEV. ADJ.
R1633 2K(B) M4622GE SEPARATION ADJ.
L1601 12μ (DF)
L1602 12μH (DF)
L1603 1.8μ (DF)
L1604 10μ (DF)
L1605 10μ (DF)
AGC
SUPPLY
Vcc
GND
CTL
SDA
SCL
D-GND
NC
E2
E1
E3 (EXT AUDIO)
E4
I²C BUS TRANS-CEIVER
OSC.
FREQ. DEVID.
L.P.F.
54.7KHz B.P.F.
DEMAGTRIX DEENPHASIS
AF.SWITCH
LOGIC
DET.
274KHz B.P.F.
B.P.F.
SOURCE SELECTOR
MUTE
A-GND
A1
A2
A3
A4
(L/A) OUT
(R/B) OUT
REC
E-E
E.E-2
REC-2
OSOCZ0841GEZZ
TUNER/IF
FA
ID
NICAM OUT
GND
IF IN
I SYSTEM (H)
NC
AT 5V
UR 13V
FB
IE
TUNER R CH
TUNER L CH
SDA
SCL
R1601 10K
R1602 8.2K
R1603 1.5K
R1604 12
R1605 330
R1606 2.7
R1607 330
R1608 3.3K
R1609 2.2K
R1610 330
R1611 330
R1613 2.7
R1614 2.2K
R1615 4.7K
R1616 3.9K
R1619 2.2K
R1620 2.2K
R1621 470
R1622 470
R1623 4.7K
R1624 4.7K
R1625 22K
R1626 10
R1627 470
R1628 560
R1629 560
R1630 3.3K
R1631 2.2K
R1634 330
R1635 330
R1636 1.5K
R1637 1K
R1638 22K
R1639 10K
R1640 1K
R1641 1K
R1642 3.9K
R1643 3.9K
R1644 120
R1647 22K
R1648 22K
R1649 150
R1660 330
C1601 1000P
C1602 .01
C1603 .01
C1604 .01
C1605 .01
C1606 .01
C1607 .01
C1608 .01
C1609 1μ (50V)
C1610 27P (CH)
C1611 2.2μ (50V)
C1612 2.2μ (50V)
C1614 .01
C1615 47μ (6.3V)
C1616 1μ (50V)
C1617 1μ (50V)
C1618 10μ (16V)
C1619 10μ (16V)
C1620 .01
C1621 220μ (16V)
C1622 .22μ (50V)
C1623 10μ (16V)
C1626 .01

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses (   )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

NICAM CIRCUIT (VC-H96/VC-H96ETS)
NICAM电路 (VC-H96/VC-H96ETS)


A
B
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G
H
1
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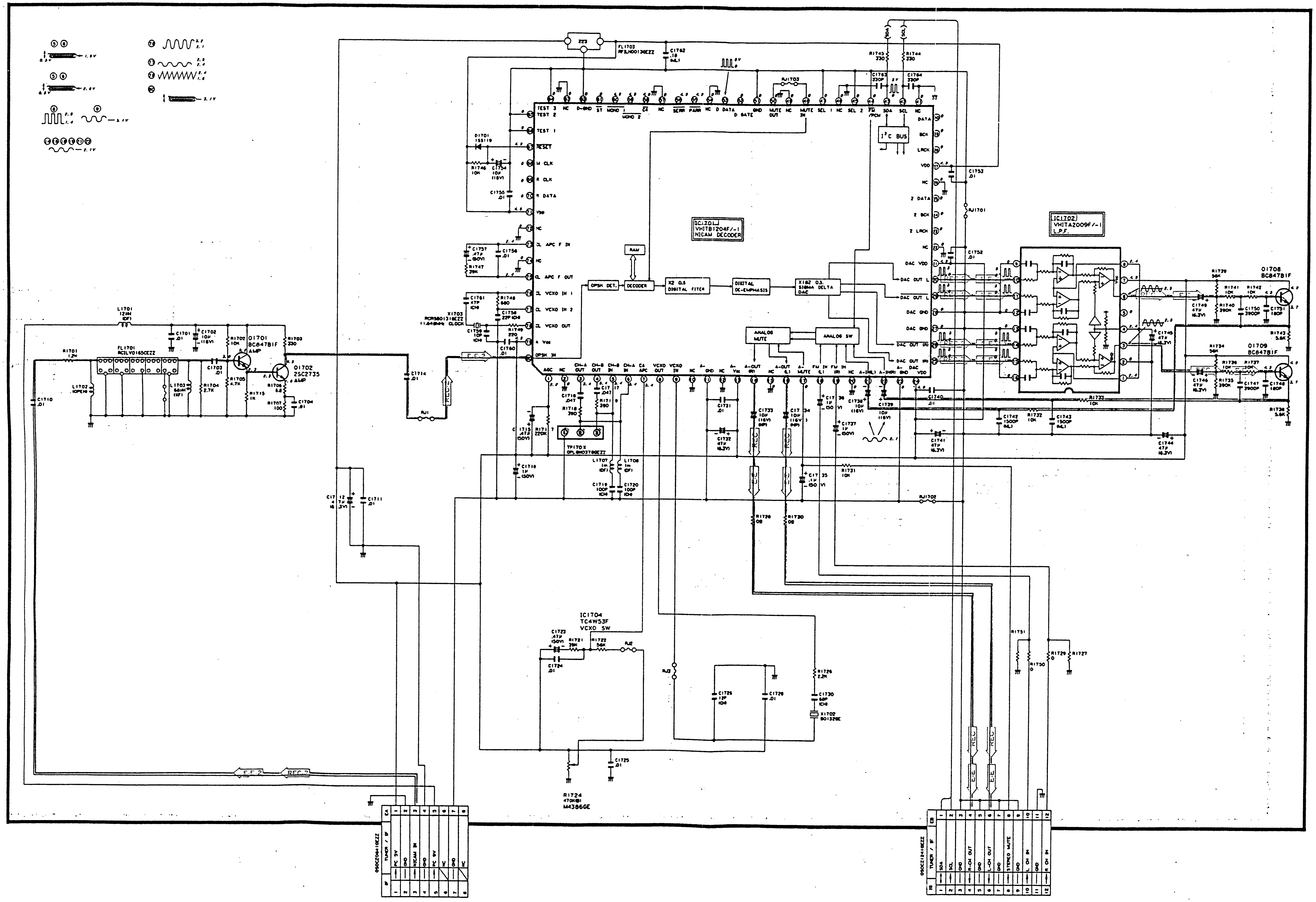
10
11
12
IC1701
VHITBT204F/-1
NICAM DECODER
OPSK DET.
DECODER
RAM
X2 O.S
DIGITAL FITER
DIGITAL
DE-EMPHASIS
X182 O.S.
SIGMA DELTA
DAC
ANALOG
MUTE
ANALOG SW
I²C BUS
TEST 3
TEST 2
TEST 1
RESET
M CLK
R CLK
R DATA
VDD
CL APC F IN
CL APC F OUT
CL VCXO IN 1
CL VCXO IN 2
CL VCXO OUT
A Vcc
OPSK IN
DATA
BCK
LRCK
2 DATA
2 BCK
2 LRCK
DAC VDD
DAC OUT L
DAC GND
DAC OUT (R)
SDA
SCL
FM /PCM
SEL 1
SEL 2
MUTE IN
MUTE OUT
D DATA
D GATE
SERR
PARR
MONO 1
MONO 2
D-GND
IC1702
VHITA2009F/-1
L.P.F.
IC1703
TC4W53F
BG/I SW
IC1704
TC4W53F
VCXO SW
BG/I SW
IC1705
TC4W53F
Q1701
BC847B1F
AMP
Q1702
2SC2735
AMP
Q1703
BC847B1F
AMP
Q1704
2SC2735
AMP
Q1705
UN2112
Q1706
UN2112
Q1707
UN2112
Q1708
BC847B1F
Q1709
BC847B1F
FL1701
RCILV0185CEZZ
FL1702
RCILV0096GEZZ
FL1703
RFILN0013GEZZ
X1701
RCRSB0131GEZZ
11.648MHz CLOCK
TP170X
R1723
470K(B)
M43860E
R1724
470K(B)
M43860E
X1701
X1702
D1701
1SS119
REC
E-E
REC-2
EA
TUNER / IF
1F
AT 5V
GND
NICAM IN
GND
PC 9V
I 9V
GND
NC
050C2084IGEZZ
EB
TUNER / IF
1G
SDA
SCL
GND
R-CH OUT
GND
L-CH OUT
GND
STEREO MUTE
GND
L CH IN
GND
R CH IN
050C2124IGEZZ

- VOLTAGE MEASUREMENT MODE

PB .... Parentheses ( )
REC .... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

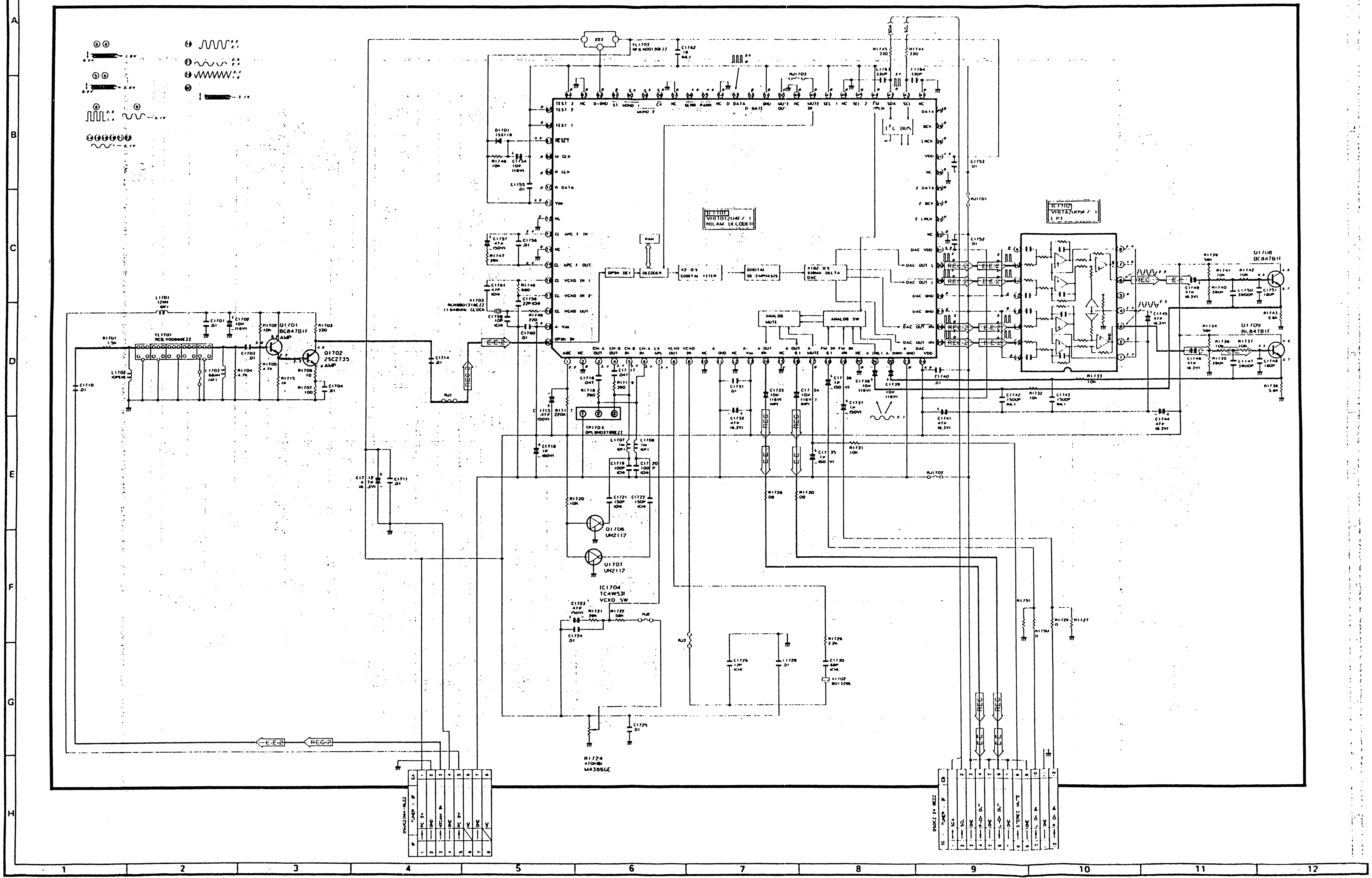
NICAM CIRCUIT (VC-H980)
NICAM电路 (VC-H980)


IC1701
VHITB1204F/-1
NICAM DECODER
IC1702
VHITA2009F/-1
L.P.F.
IC1704
TC4W53F
VCXO SW
OPSK DET.
DECODER
RAM
X2 O.S
DIGITAL FITER
DIGITAL
DE-EMPHASIS
X182 O.S.
SIGMA DELTA
DAC
ANALOG
MUTE
ANALOG SW
I²C BUS
Q1701
BC847B1F
AMP
Q1702
2SC2735
AMP
Q1708
BC847B1F
Q1709
BC847B1F
FL1701
RCILV0165CEZZ
FL1703
RFILN0013BEZZ
X1703
RCRS801318EZZ
11.648MHz CLOCK
X1702
TP1701
R1724
470K(B)
VDD
NC
2 DATA
2 BCK
2 LRCK
DAC VDD
DAC OUT L
DAC GND
DAC OUT (R)
C1753
.01
C1752
.01
RJ1701
RJ1702
REC
E-E
F.F.2
REC-2
TUNER / IF
SDA
SCL
GND
R-CH OUT
L-CH OUT
STEREO MUTE
L CH IN
R CH IN
PC 5V
NICAM IN
PC 9V
NC

* VOLTAGE MEASUREMENT MODE
PB .... Parentheses (   )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

NICAM CIRCUIT (VC-H980ETS)
NICAM电路 (VC-H980ETS)


IC1701
VHITDA2041/-1
NICAM DECODER
IC1702
VHITA2OOPM/-1
LPF
IC1704
TC4W53F
VCXO SW
Q1701
BC847B1F
AMP
Q1702
2SC2735
AMP
Q1706
UN2112
Q1707
UN2112
Q1708
BC847B1F
Q1709
BC847B1F
RAM
DQPSK DET
DECODER
X2 OS
DIGITAL FILTER
DIGITAL
DE-EMPHASIS
X182 OS
SIGMA DELTA
DAC
ANALOG
MUTE
ANALOG SW
DAC OUT L
DAC OUT (R)
DAC VDD
DAC GND
REC-2
E-E-2
REC
E-E
TP1701
R1724
470K(B)
M43866E
C1723
47P
C1724
.01
C1725
.01
R1720
10K
C1721
150P
C1722
150P
L1707
L1708
C1719
100P
C1740
.01
R1733
10K
C1742
1500P
C1743
1500P
R1732
10K
RJ1701
C1752
.01
C1753
.01
A
B
C
D
E
F
G
H
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12

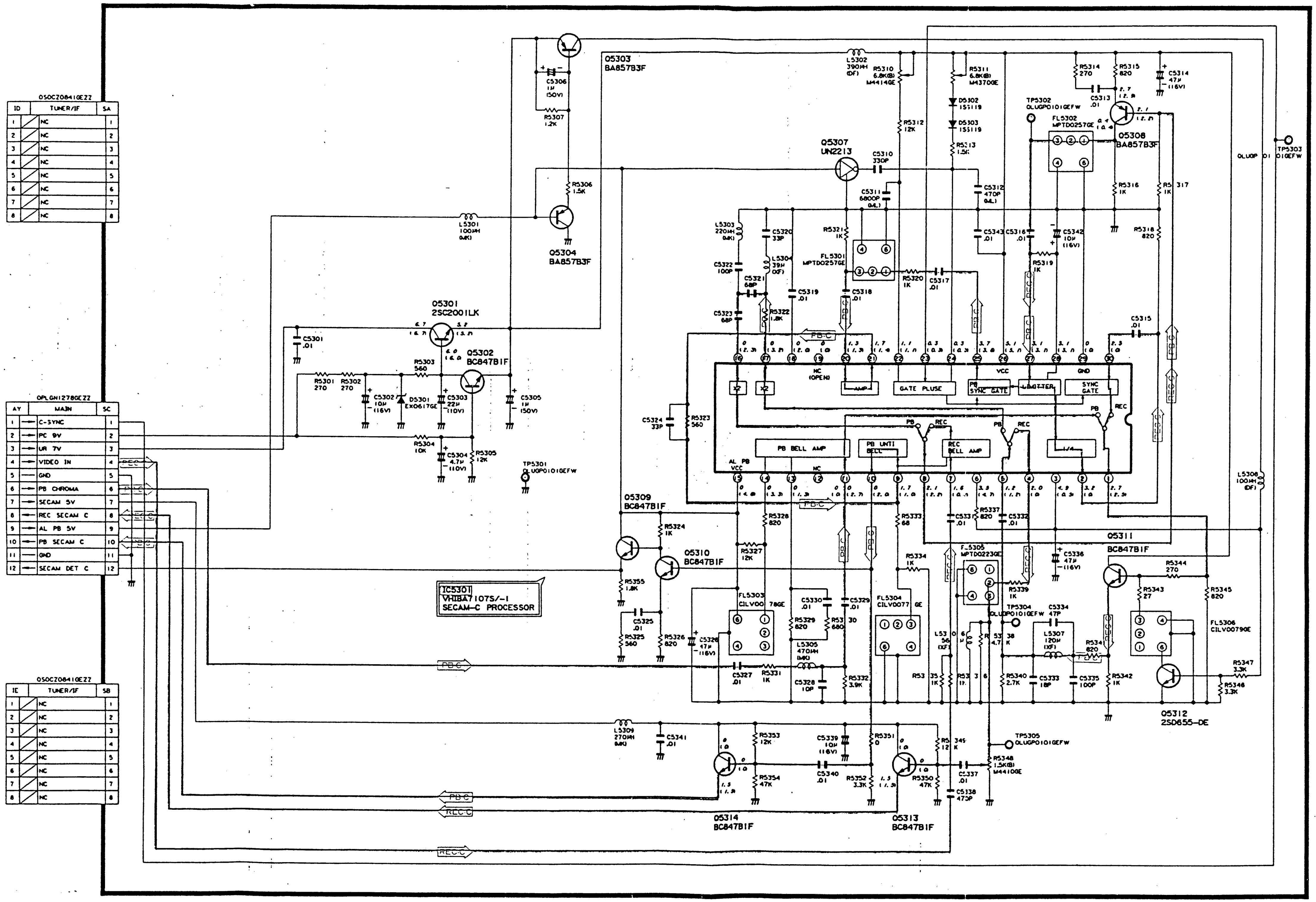
* VOLTAGE MEASUREMENT MODE

PB .... Parentheses ( )

● 电压测量数值

再现：括弧内的数值

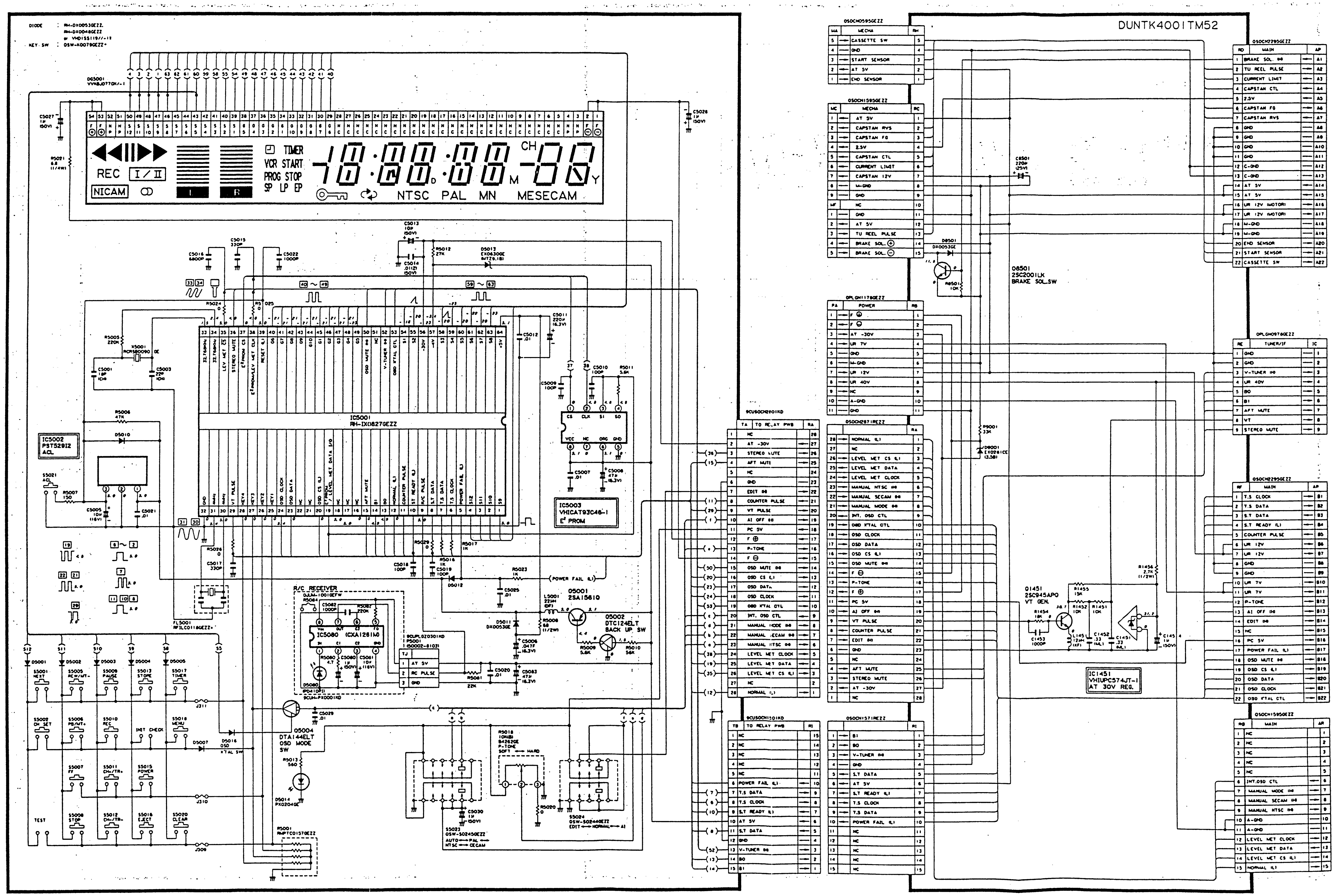
SECAM CHROMA CIRCUIT (VC-H91/VC-H91ETS)
SECAM色度电路 (VC-H91/VC-H91ETS)


0S0CZ08410EZZ
TUNER/IF
OPLGN1278GEZZ
MAIN
C-SYNC
PC 9V
UR 7V
VIDEO IN
GND
PB CHROMA
SECAM 5V
REC SECAM C
AL PB 5V
PB SECAM C
SECAM DET C
Q5301 2SC2001LK
Q5302 BC847B1F
Q5303 BA857B3F
Q5304 BA857B3F
Q5307 UN2213
Q5308 BA857B3F
Q5309 BC847B1F
Q5310 BC847B1F
Q5311 BC847B1F
Q5312 2SD655-DE
Q5313 BC847B1F
Q5314 BC847B1F
IC5301 VHIBA7107S/-1 SECAM-C PROCESSOR
FL5301 MPTD0257GE
FL5302 MPTD0257GE
FL5303 CILV0078GE
FL5304 CILV0077GE
FL5305 MPTD0223GE
FL5306 CILV0079GE
D5301 EX0617GE
D5302 1SS119
D5303 1SS119
TP5301 QLUGP0101GEFW
TP5302 QLUGP0101GEFW
TP5303 QLUGP0101GEFW
TP5304 QLUGP0101GEFW
TP5305 QLUGP0101GEFW
PB BELL AMP
PB UNTI BELL
REC BELL AMP
GATE PLUSE
PB SYNC GATE
LIMITTER
SYNC GATE
AMP
PB-C
REC-C
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

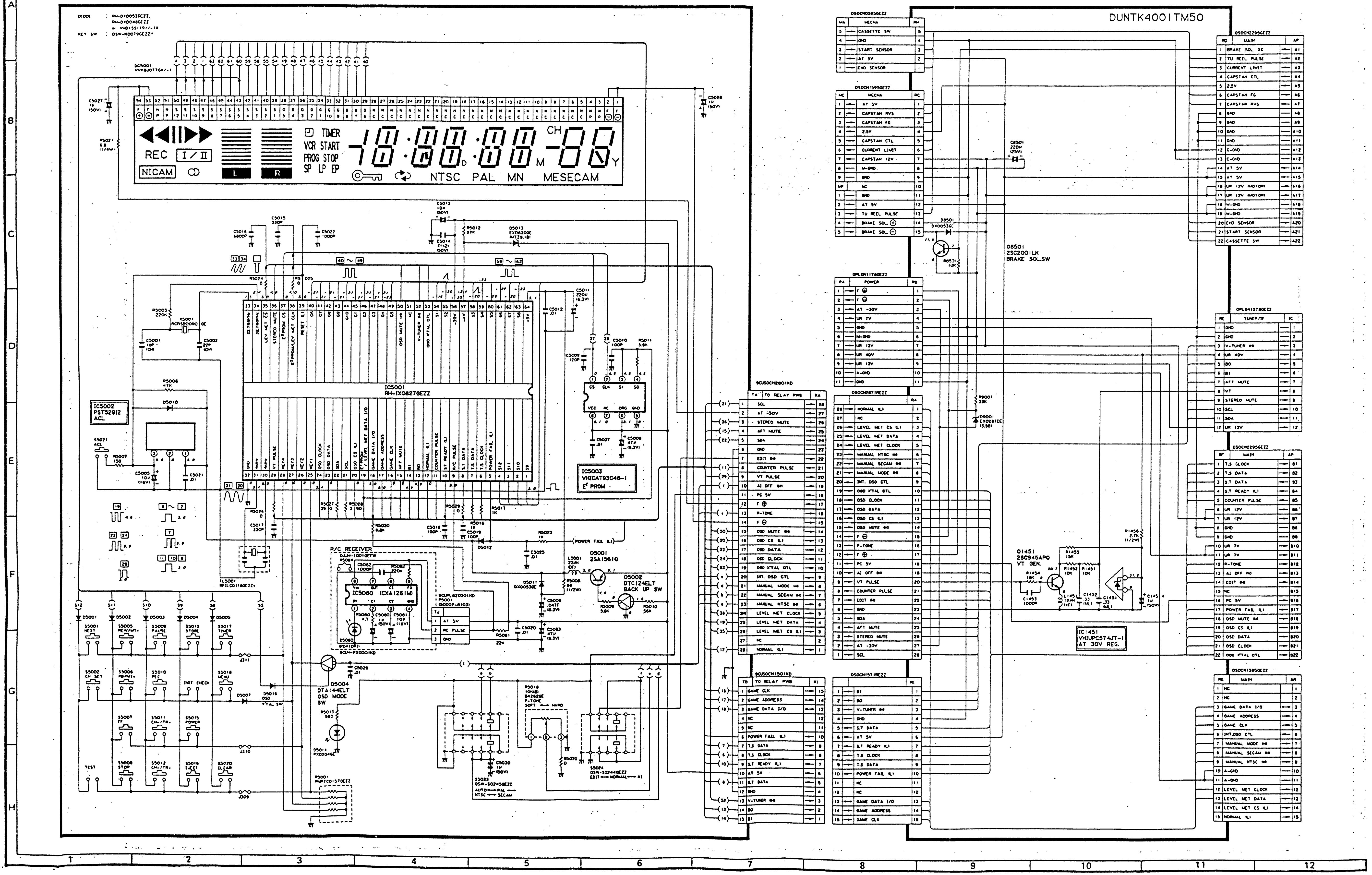
* VOLTAGE MEASUREMENT MODE
PB .... Parentheses ( )
REC ...... Without Parentheses

●电压测量数值
再现：括弧内的数值
记录：无括弧的数值

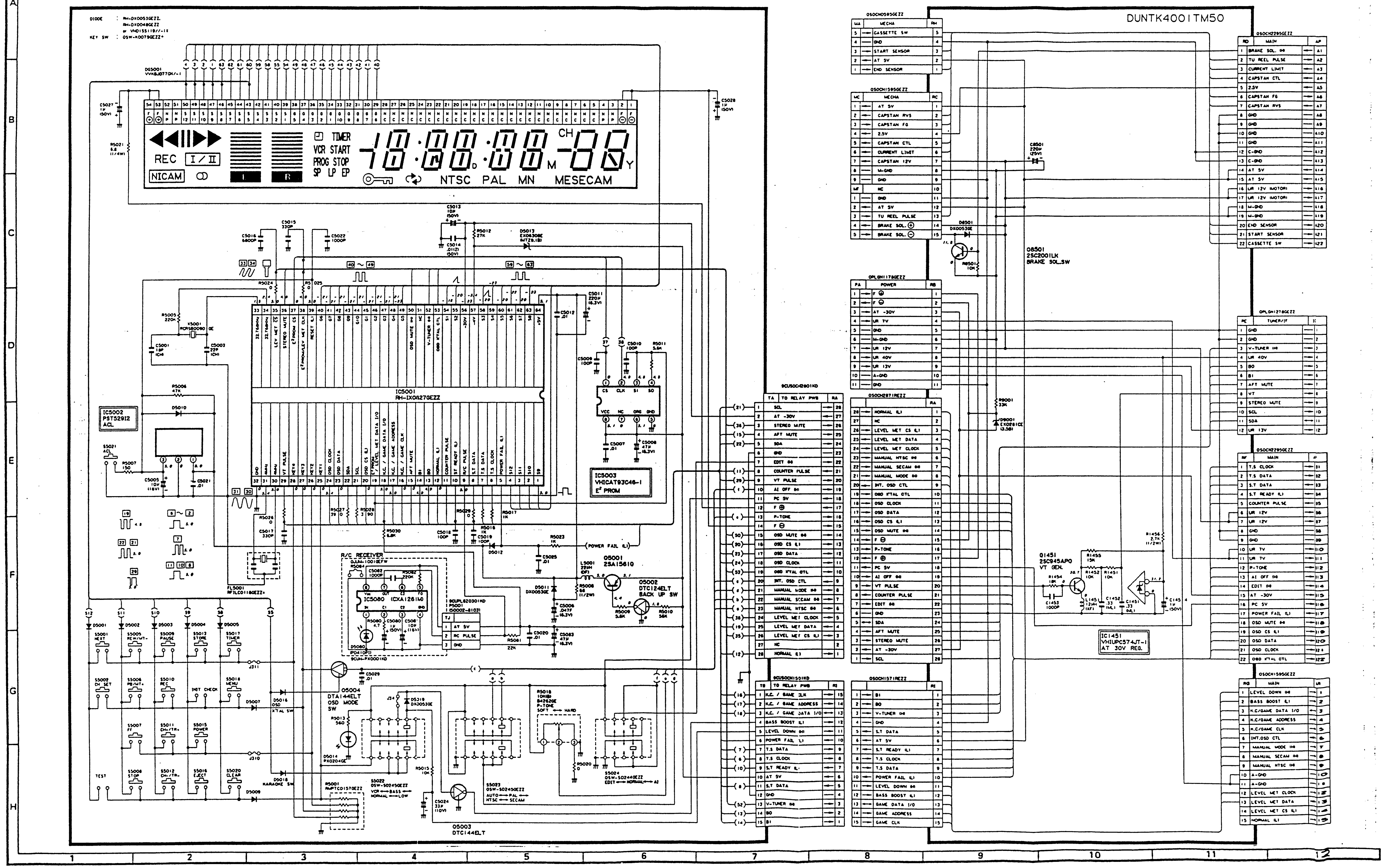
TIMER · RELAY CIRCUIT (VC-H91/VC-H91ETS)
定时器/继电器电路 (VC-H91/VC-H91ETS)


DUNTK4001TM52
IC5001 RH-IX0827GEZZ
IC5002 PST529I2 ACL
IC5003 VHiCAT93C46-1 E² PROM
IC5080 (CXA1261M)
R/C RECEIVER
Q5001 2SA1561O
Q5002 DTC124ELT BACK UP SW
Q5004 DTA144ELT OSD MODE SW
Q8501 2SC2001LK BRAKE SOL_SW
Q1451 2SC945APO VT GEN.
IC1451 VHiUPC574JT-1 AT 30V REG.
REC
I/II
NICAM
TIMER
VCR START
PROG STOP
SP LP EP
CH
NTSC PAL MN MESECAM
POWER FAIL (L)
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

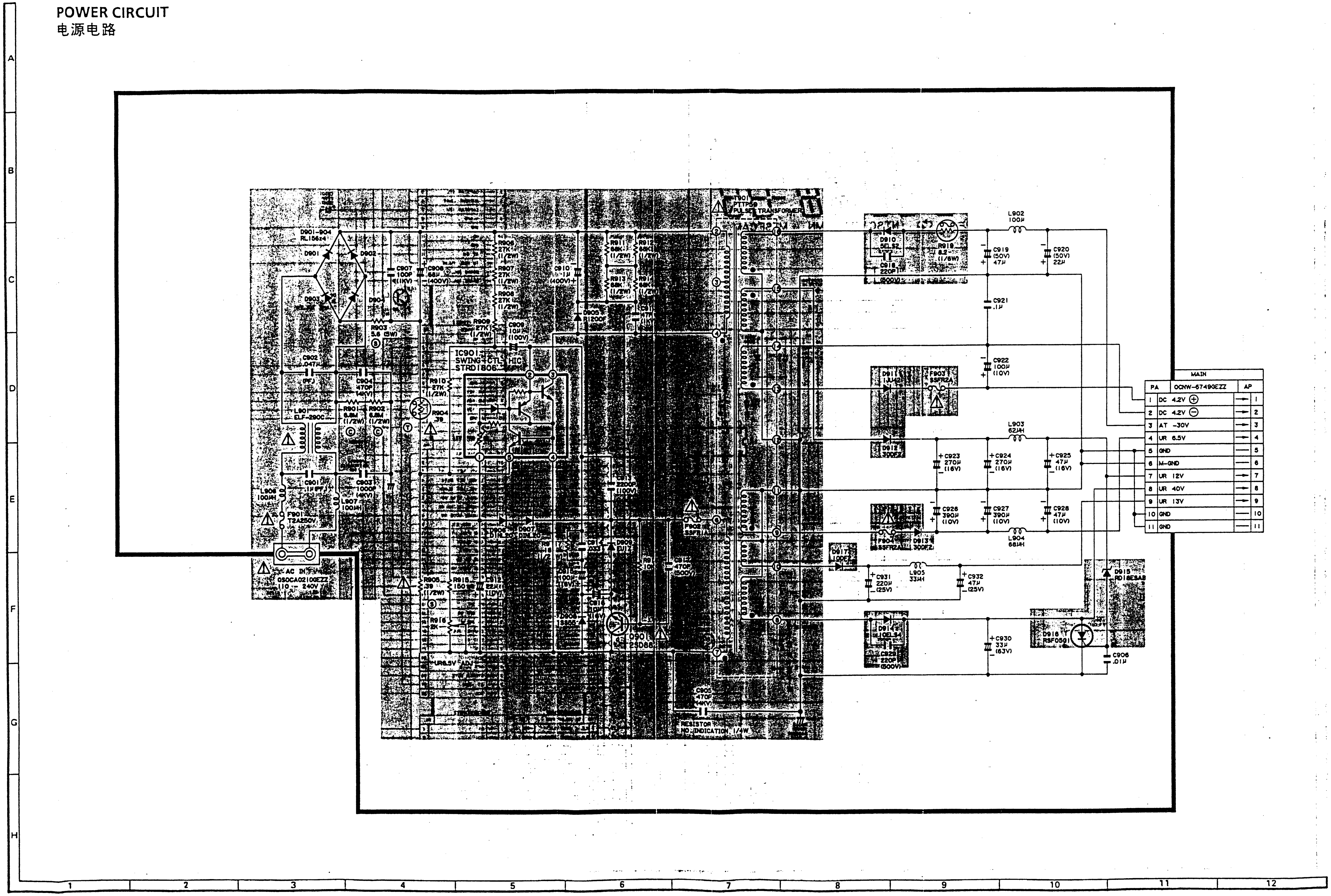
TIMER · RELAY CIRCUIT (VC-H96/VC-H96ETS)
定时器/继电器电路(VC-H96/VC-H96ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
REC
I / II
NICAM
L
R
TIMER
VCR START
PROG STOP
SP LP EP
CH
NTSC PAL MN MESECAM
IC5001
RH-IX0827GEZZ
IC5002
PST52912
ACL
IC5003
VHiCAT93C46-1
E² PROM
R/C RECEIVER
IC5080 (CXA1261M)
Q5001
2SA1561Q
Q5002
DTC124ELT
BACK UP SW
Q5004
DTA144ELT
OSD MODE
SW
POWER FAIL (L)
TEST
DUNTK4001TM50
Q8501
2SC2001LK
BRAKE SOL.SW
Q1451
2SC945APO
VT GEN.
IC1451
VHiUPC574JT-1
AT 30V REG.
MECHA
POWER
MAIN
TUNER/IF
TO RELAY PWB
AUTO ←→ PAL ←→ NTSC ←→ SECAM
EDIT ←→ NORMAL ←→ AI

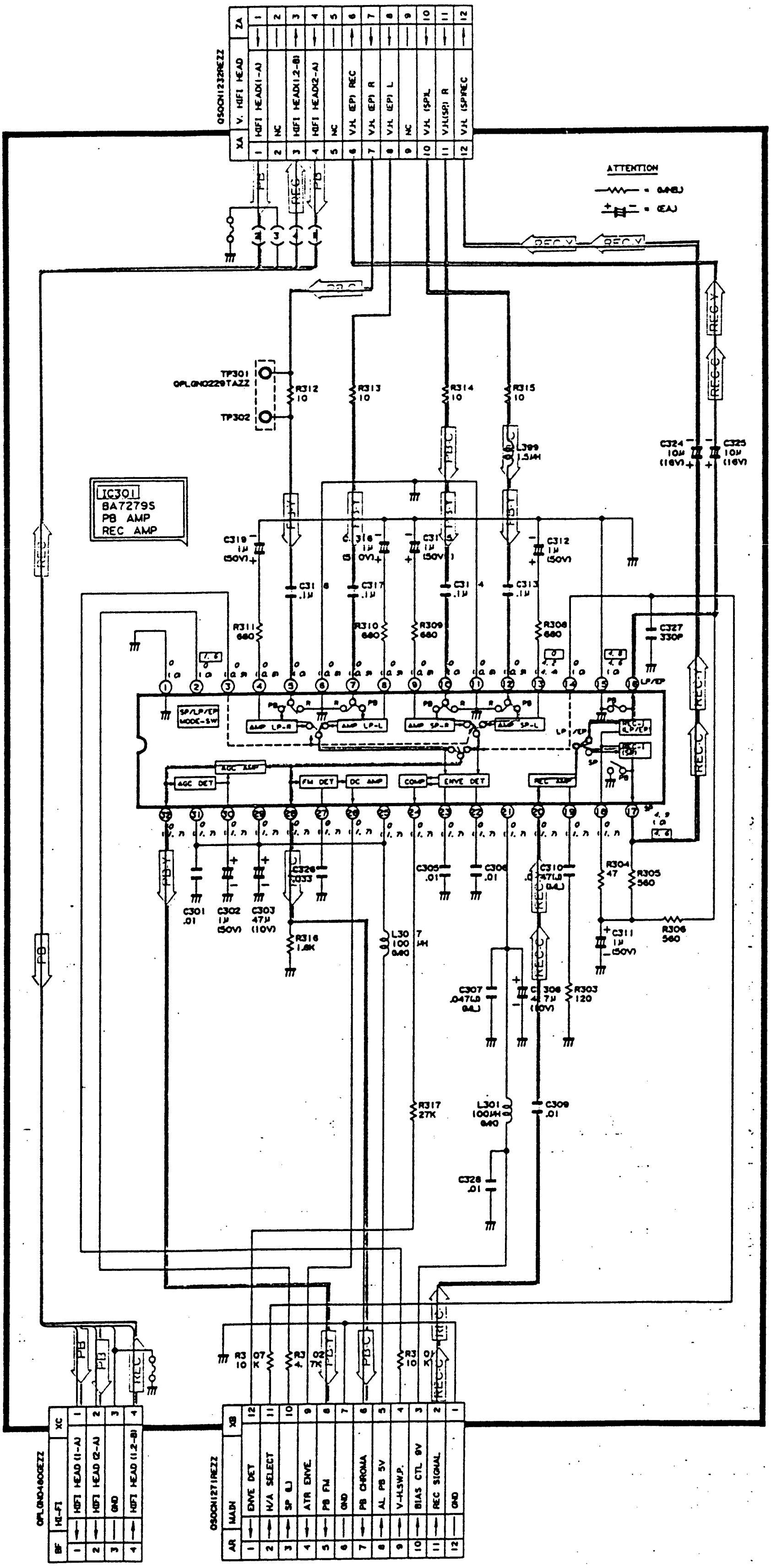
TIMER · RELAY CIRCUIT (VC-H980/VC-H980ETS)
定时器/继电器电路 (VC-H980/VC-H980ETS)


IC5001
RH-IX0A27GEZZ
IC5002
PST529I2
ACL
IC5003
VHiCAT93C46-1
E² PROM
IC5080 (CXA1261N)
IC1451
VHiUPC574JT-1
AT 30V REG.
REC
NICAM
TIMER
VCR START
PROG STOP
SP LP EP
NTSC PAL MN MESECAM
CH
DUNTK4001TM50
Q5001
2SA1561Q
Q5002
DTC124ELT
BACK UP SW
Q5004
DTA144ELT
OSD MODE SW
Q5003
DTC144ELT
Q8501
2SC2001LK
BRAKE SOL SW
Q1451
2SC945APO
VT GEN.
R/C RECEIVER
(POWER FAIL (L))
TEST
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

POWER CIRCUIT
电源电路


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
D901-904
RL156x4
D901
D902
D903
D904
C907
100P
(1KV)
C908
68μ
(400V)
R903
5.6 (5W)
C902
.047μ
(PF)
C904
470P
(4KV)
R901
6.8M
(1/2W)
R902
6.8M
(1/2W)
L901
ELF-290C
C901
1μ(PF)
C903
1000P
(4KV)
L906
100μH
L907
100μH
F901
T2A250V
AC IN
QSOCA0210GEZZ
110 ~ 240V
R905
27K
(1/2W)
R906
27K
(1/2W)
R907
27K
(1/2W)
R908
27K
(1/2W)
R909
27K
(1/2W)
C909
10μ
(100V)
C910
.1μ
(400V)
R911
68K
(1/2W)
R912
68K
(1/2W)
R913
68K
(1/2W)
D905
R1200F
IC901
SWING CTL HIC
STR81806
R910
27K
(1/2W)
R904
39
R915
150
R916
2K
VR6.5V ADJ
Q901
2SD868
C911
2200P
(100V)
F902
S3FR2A
C905
470P
(4KV)
RESISTOR
NO INDICATION 1/4W
T901
PTTPS0
PULSE TRANSFORMER
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
D910
5EL52
C918
220P
(500V)
R919
8.2
(1/6W)
L902
100μ
C919
(50V)
47μ
C920
(50V)
22μ
C921
.1μ
C922
100μ
(10V)
D911
10JU42
F903
S3FR2A
L903
62μH
D912
30DF2
C923
270μ
(16V)
C924
270μ
(16V)
C925
47μ
(16V)
C926
390μ
(10V)
C927
390μ
(10V)
C928
47μ
(10V)
F904
S3FR2A
D913
30DF2
L904
68μH
D917
10DF2
C931
220μ
(25V)
L905
33μH
C932
47μ
(25V)
D914
10EL54
C929
220P
(500V)
C930
33μ
(63V)
D915
RD18ESAB
D916
RSF0591
C906
.01μ
MAIN
PA
OCNW-6749GEZZ
AP
1 DC 4.2V ⊕ 1
2 DC 4.2V ⊖ 2
3 AT -30V 3
4 UR 6.5V 4
5 GND 5
6 M-GND 6
7 UR 12V 7
8 UR 40V 8
9 UR 13V 9
10 GND 10
11 GND 11

HEAD AMP CIRCUIT
前置放大器电路

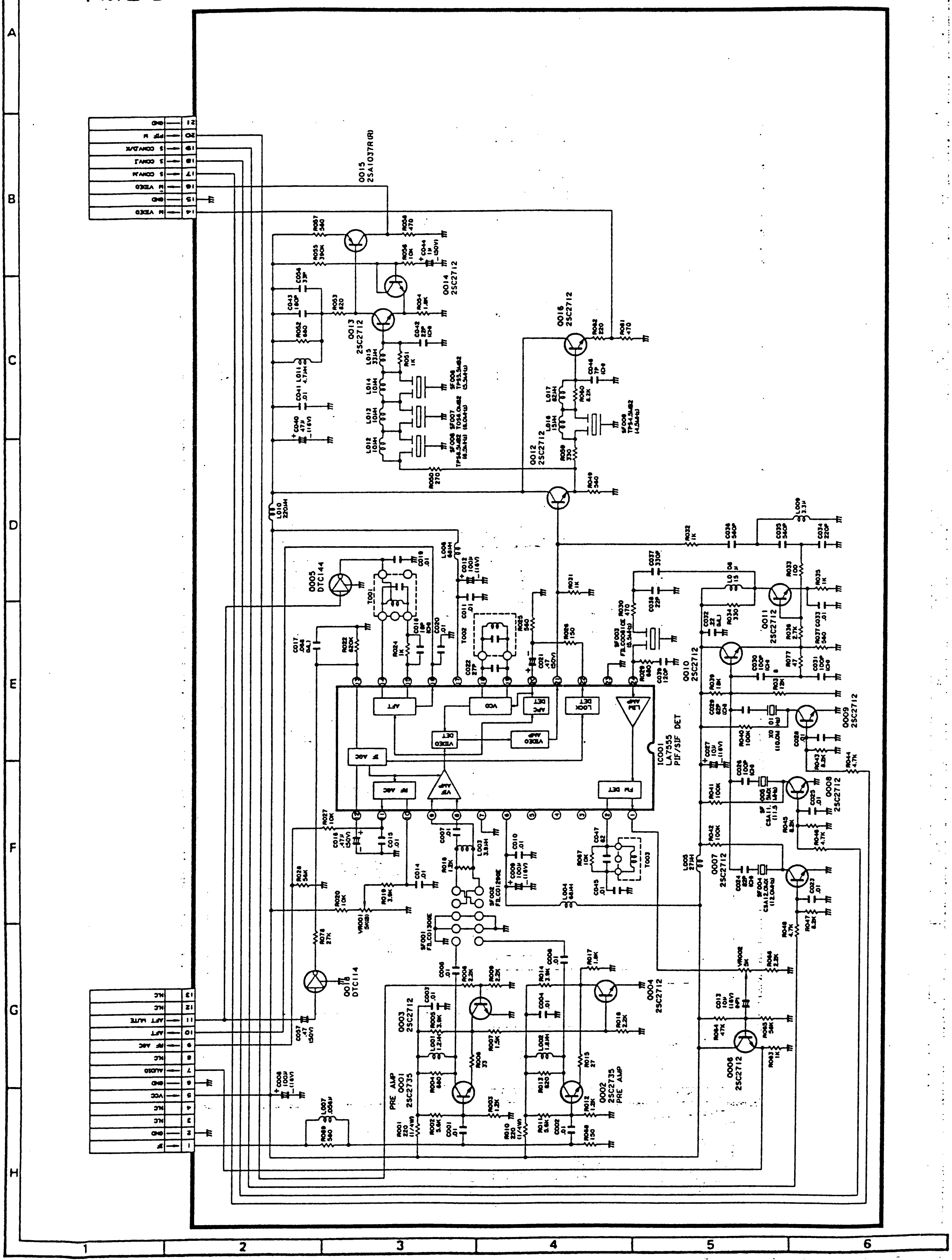

0500N1232RE22
XA
V. HIFI HEAD
ZA
HIFI HEAD(1-A)
NC
HIFI HEAD(1.2-B)
HIFI HEAD(2-A)
NC
V.H. (EP) REC
V.H. (EP) R
V.H. (EP) L
NC
V.H. (SP)L
V.H.(SP) R
V.H. (SP)REC
ATTENTION
PB
REC
REC-Y
PB-C
REC-C
TP301
QPLGN0229TAZZ
TP302
R312 10
R313 10
R314 10
R315 10
L399 1.5μH
C324 10μ (16V)
C325 10μ (16V)
IC301
BA7279S
PB AMP
REC AMP
C319 1μ (50V)
C316 1μ (50V)
C315 1μ (50V)
C312 1μ (50V)
C318 .1μ
C317 .1μ
C314 .1μ
C313 .1μ
R311 680
R310 680
R309 680
R308 680
C327 330P
SP/LP/EP MODE-SW
AMP LP-R
AMP LP-L
AMP SP-R
AMP SP-L
AGC AMP
AGC DET
FM DET
DC AMP
COMP
ENVE DET
REC AMP
REC-Y
REC-C
LP/EP
SP
C301 .01
C302 1μ (50V)
C303 47μ (10V)
C326 .033
R316 1.8K
L307 100μH
C305 .01
C306 .01
C310 .047
R304 47
R305 560
R306 560
C311 1μ (50V)
C307 .047
C308 4.7μ (50V)
R303 120
R317 27K
L301 100μH
C309 .01
C328 .01
R307 10K
R302 4.7K
R301 10K
QPLGN0460GEZZ
BF
HI-FI
XC
HIFI HEAD (1-A)
HIFI HEAD (2-A)
GND
HIFI HEAD (1.2-B)
0500N1271REZZ
AR
MAIN
XB
ENVE DET
H/A SELECT
SP (L)
ATR ENVE
PB FM
GND
PB CHROMA
AL PB 5V
V-H.SW.P.
BIAS CTL 9V
REC SIGNAL
GND
1
2
3
4
5
6
7
8
9
10
11
12

- VOLTAGE MEASUREMENT MODE

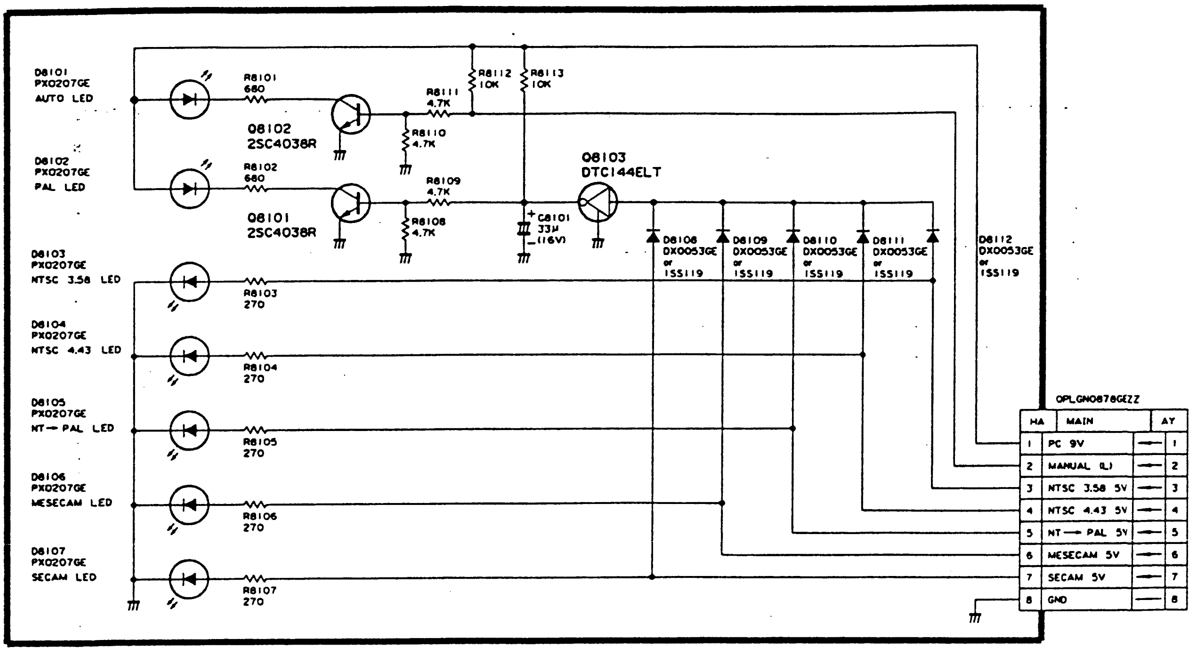
PB .... Parentheses ( )
REC ...... Without Parentheses

● 电压测量数值
再现：括弧内的数值
记录：无括弧的数值

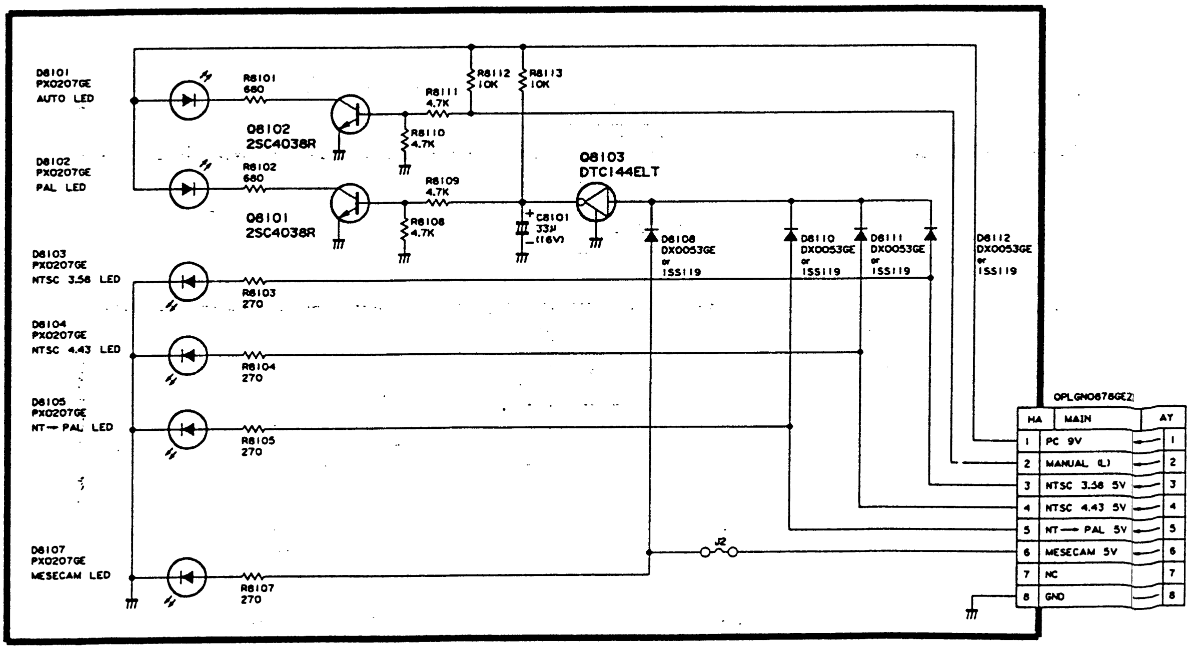
IF PACK CIRCUIT
中频包电路


A
B
C
D
E
F
G
H
1
2
3
4
5
6
Q015 2SA1037R(R)
Q014 2SC2712
Q013 2SC2712
Q016 2SC2712
Q012 2SC2712
Q005 DTC144
Q011 2SC2712
Q010 2SC2712
Q009 2SC2712
Q008 2SC2712
Q007 2SC2712
Q018 DTC114
Q003 2SC2712
Q004 2SC2712
Q006 2SC2712
PRE AMP Q001 2SC2735
Q002 2SC2735 PRE AMP
IC001 LA7555 PIF/SIF DET
AFT
VCO
APC DET
LOCK DET
AMP
VIDEO DET
VIDEO AMP
IF AGC
RF AGC
VIF AMP
FM DET
T001
T002
T003
SF001
SF002
SF003
SF004
SF005
SF006
SF007
SF008
L010 220μH
VR001 5K(B)
VR002 5K
GND
VIDEO
AFT MUTE
AFT
RF AGC
N.C
AUDIO
VCC

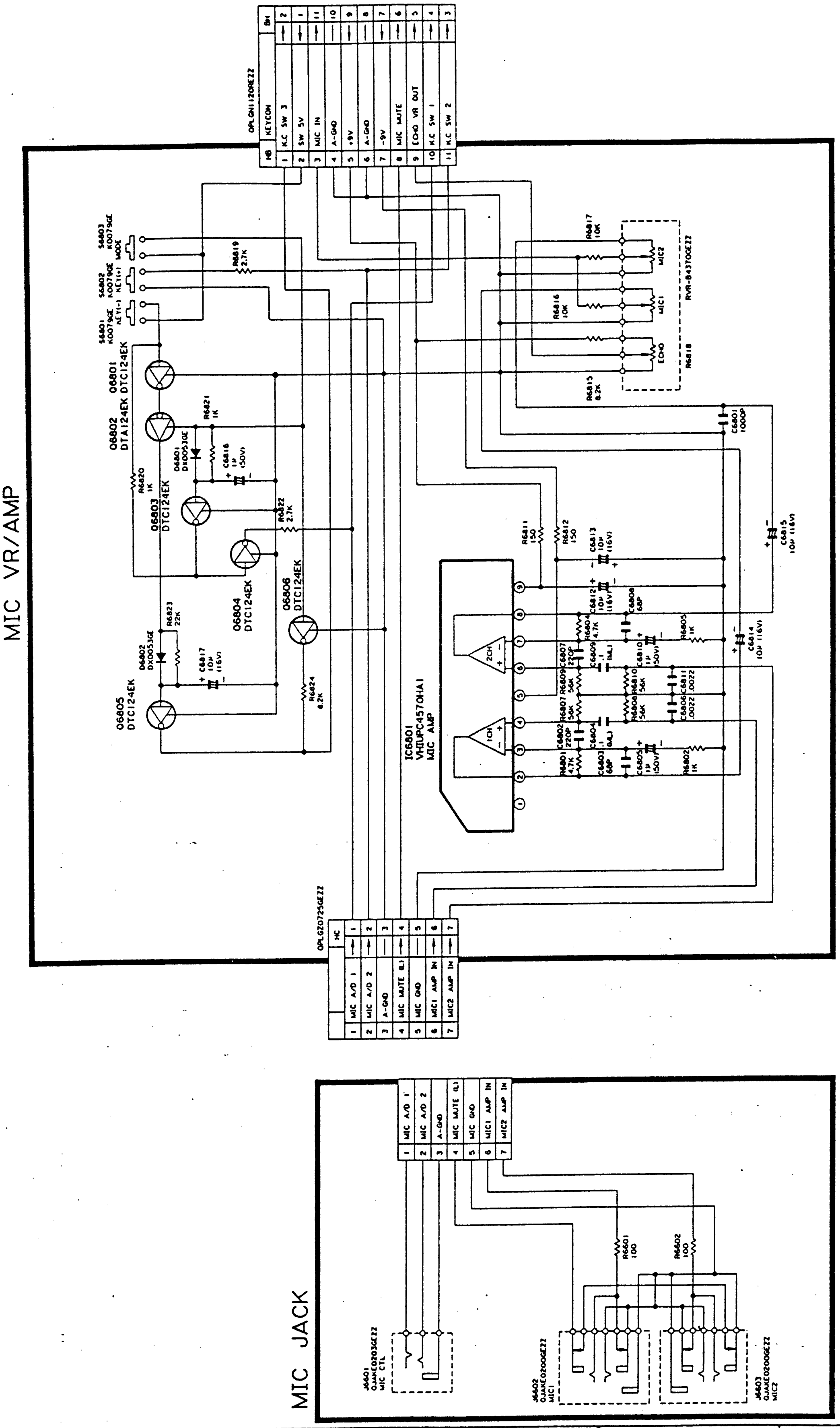
SYSTEM LED CIRCUIT (VC-H91/VC-H91ETS)
系统液晶显示器电路 (VC-H91/VC-H91ETS)


D8101 PX0207GE AUTO LED
D8102 PX0207GE PAL LED
D8103 PX0207GE NTSC 3.58 LED
D8104 PX0207GE NTSC 4.43 LED
D8105 PX0207GE NT→PAL LED
D8106 PX0207GE MESECAM LED
D8107 PX0207GE SECAM LED
R8101 680
R8102 680
R8103 270
R8104 270
R8105 270
R8106 270
R8107 270
R8108 4.7K
R8109 4.7K
R8110 4.7K
R8111 4.7K
R8112 10K
R8113 10K
Q8102 2SC4038R
Q8101 2SC4038R
Q8103 DTC144ELT
C8101 33μ (16V)
D8108 DX0053GE or 1SS119
D8109 DX0053GE or 1SS119
D8110 DX0053GE or 1SS119
D8111 DX0053GE or 1SS119
D8112 DX0053GE or 1SS119
OPLGN0878GEZZ
HA
MAIN
AY
1 PC 9V 1
2 MANUAL (L) 2
3 NTSC 3.58 5V 3
4 NTSC 4.43 5V 4
5 NT→PAL 5V 5
6 MESECAM 5V 6
7 SECAM 5V 7
8 GND 8

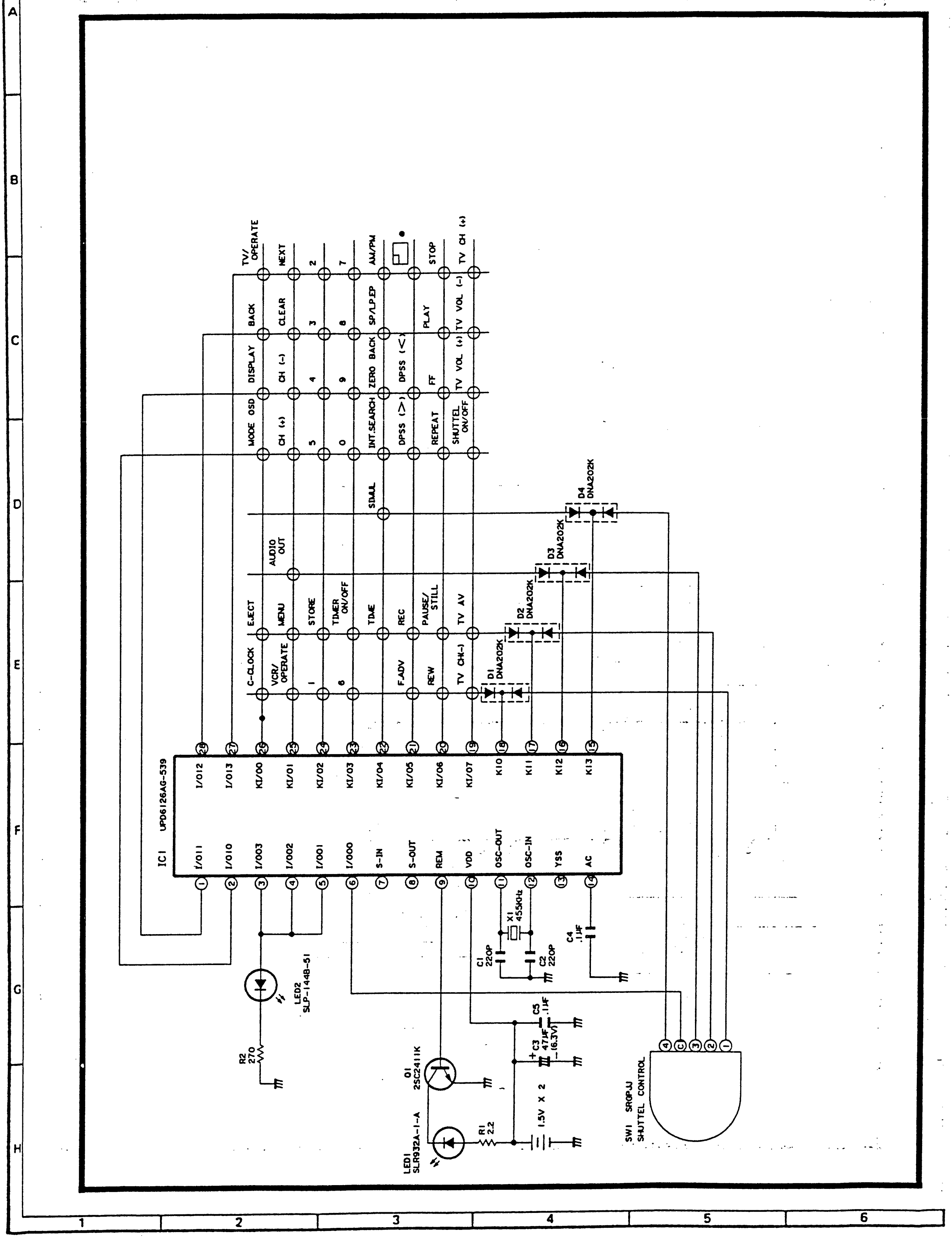
SYSTEM LED CIRCUIT (VC-H96/VC-H96ETS)
系统液晶显示器电路 (VC-H96/VC-H96ETS)


D8101 PX0207GE AUTO LED
D8102 PX0207GE PAL LED
D8103 PX0207GE NTSC 3.58 LED
D8104 PX0207GE NTSC 4.43 LED
D8105 PX0207GE NT→PAL LED
D8107 PX0207GE MESECAM LED
R8101 680
R8102 680
R8103 270
R8104 270
R8105 270
R8107 270
R8108 4.7K
R8109 4.7K
R8110 4.7K
R8111 4.7K
R8112 10K
R8113 10K
Q8102 2SC4038R
Q8101 2SC4038R
Q8103 DTC144ELT
C8101 33μ (16V)
D8108 DX0053GE or 1SS119
D8110 DX0053GE or 1SS119
D8111 DX0053GE or 1SS119
D8112 DX0053GE or 1SS119
J2
OPLGN0878GEZ
HA
MAIN
AY
1 PC 9V 1
2 MANUAL (L) 2
3 NTSC 3.58 5V 3
4 NTSC 4.43 5V 4
5 NT→PAL 5V 5
6 MESECAM 5V 6
7 NC 7
8 GND 8

MIC AMP · MIC JACK CIRCUIT (VC-H980/VC-H980ETS)
麦克风放大器电路 · 麦克风插座电路 (VC-H980/VC-H980ETS)

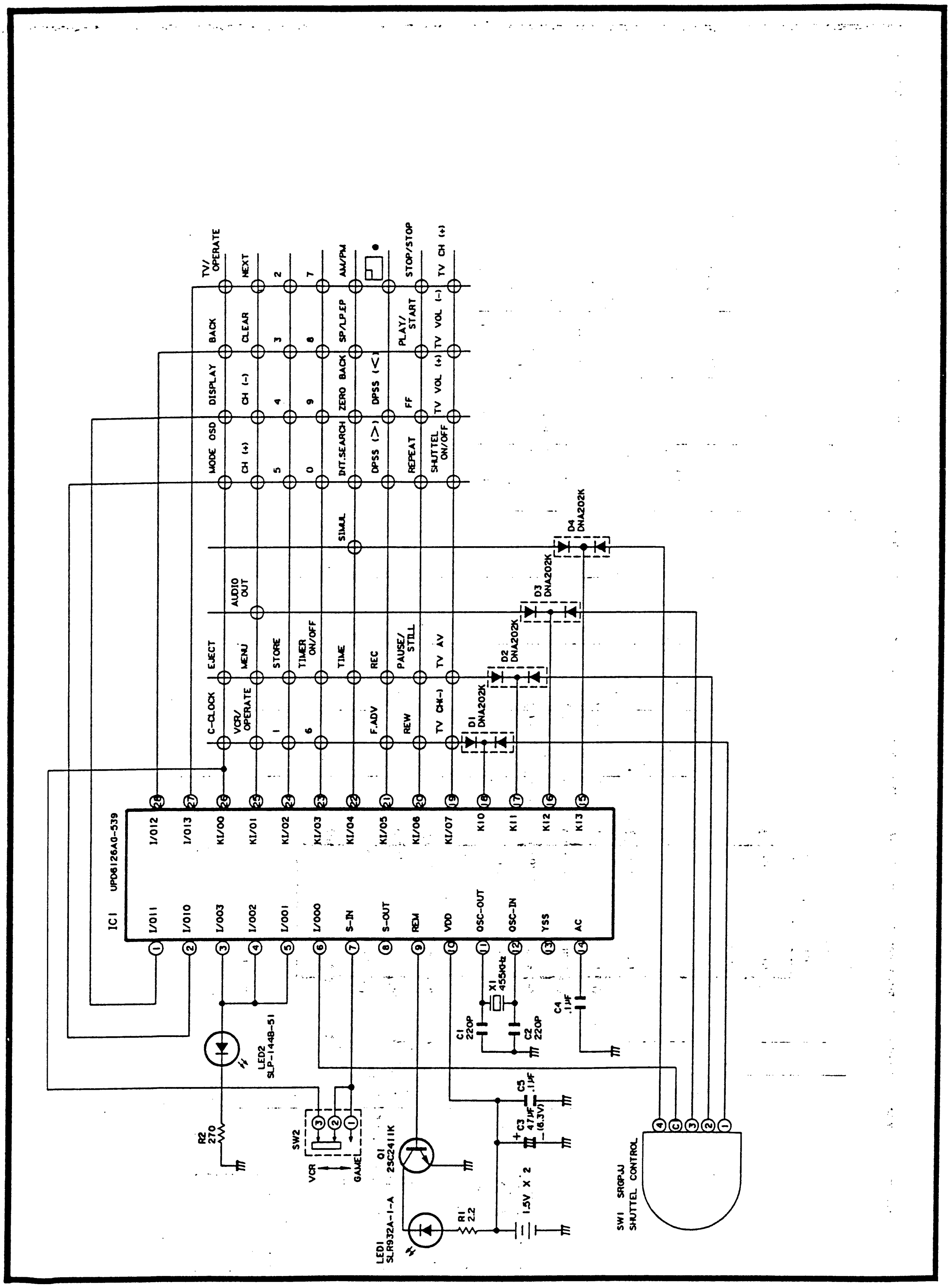

MIC VR/AMP
QPLGN1120REZZ
KEYCON
K.C SW 3
SW 5V
MIC IN
A-GND
+9V
A-GND
-9V
MIC MUTE
ECHO VR OUT
K.C SW 1
K.C SW 2
S6801
S6802
S6803
R6817 10K
R6816 10K
R6815 8.2K
R6818
R6819 2.7K
MIC2
MIC1
ECHO
RVR-B437OGEZZ
Q6801 DTC124EK
Q6802 DTA124EK
Q6803 DTC124EK
Q6804 DTC124EK
Q6805 DTC124EK
Q6806 DTC124EK
D6801 DX0053GE
D6802 DX0053GE
R6820 1K
R6821 1K
R6822 2.7K
R6823 22K
R6824 8.2K
C6816
C6817 10μ (16V)
C6801 1000P
R6811 150
R6812 150
C6813 10μ (16V)
C6812 10μ (16V)
C6815 10μ (16V)
C6814 10μ (16V)
C6808 68P
R6805 1K
R6802 1K
IC6801 VHIUPC4570HA1 MIC AMP
1CH
2CH
QPLGZ0725GEZZ
MIC A/D 1
MIC A/D 2
A-GND
MIC MUTE (L)
MIC GND
MIC1 AMP IN
MIC2 AMP IN
MIC JACK
R6601 100
R6602 100
J6601 QJAKE0203GEZZ MIC CTL
J6602 QJAKE0200GEZZ MIC1
J6603 QJAKE0200GEZZ MIC2

INFRARED REMOTE CONTROL CIRCUIT (VC-H91/VC-H91ETS)
红外线遥控器电路 (VC-H91/VC-H91ETS)

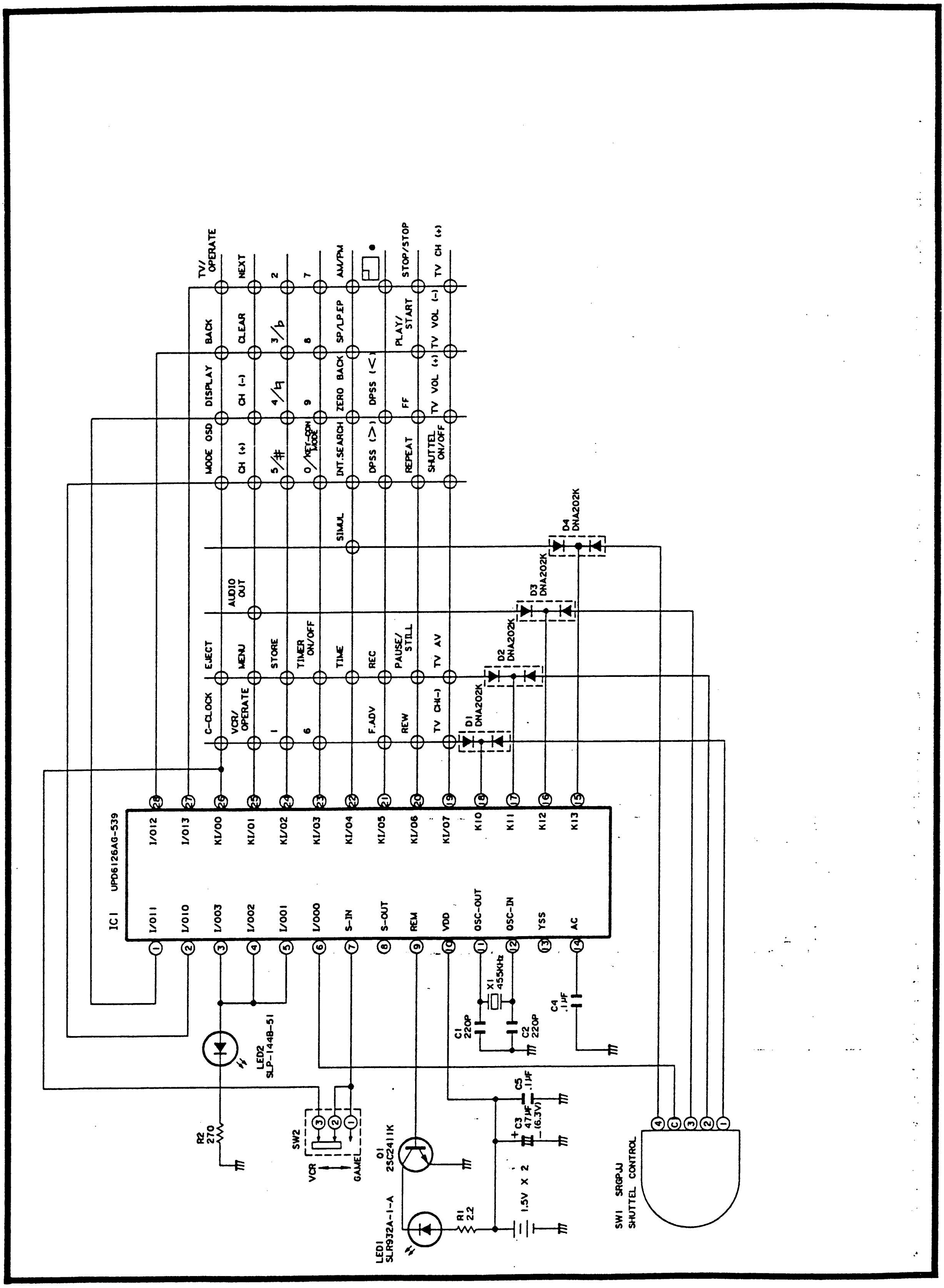

A
B
C
D
E
F
G
H
1
2
3
4
5
6
TV/ OPERATE
NEXT
2
7
AM/PM
STOP
TV CH (+)
BACK
CLEAR
3
8
SP/LP,EP
PLAY
TV VOL (-)
DISPLAY
CH (-)
4
9
ZERO BACK
DPSS (<)
FF
TV VOL (+)
MODE OSD
CH (+)
5
0
INT.SEARCH
DPSS (>)
REPEAT
SHUTTEL ON/OFF
SIMUL
AUDIO OUT
EJECT
MENU
STORE
TIMER ON/OFF
TIME
REC
PAUSE/ STILL
TV AV
C-CLOCK
VCR/ OPERATE
1
6
F.ADV
REW
TV CH(-)
D1 DNA202K
D2 DNA202K
D3 DNA202K
D4 DNA202K
IC1 UPD6126AG-539
I/O12
I/O13
KI/O0
KI/O1
KI/O2
KI/O3
KI/O4
KI/O5
KI/O6
KI/O7
KI0
KI1
KI2
KI3
I/O11
I/O10
I/O03
I/O02
I/O01
I/O00
S-IN
S-OUT
REM
VDD
OSC-OUT
OSC-IN
VSS
AC
X1 455KHz
C1 220P
C2 220P
C4 .1μF
LED2 SLP-144B-51
R2 270
C5 .1μF
C3 47μF (6.3V)
Q1 2SC2411K
LED1 SLR932A-1-A
R1 2.2
1.5V X 2
SW1 SRGPJJ SHUTTEL CONTROL

INFRARED REMOTE CONTROL CIRCUIT (VC-H96/VC-H96ETS)

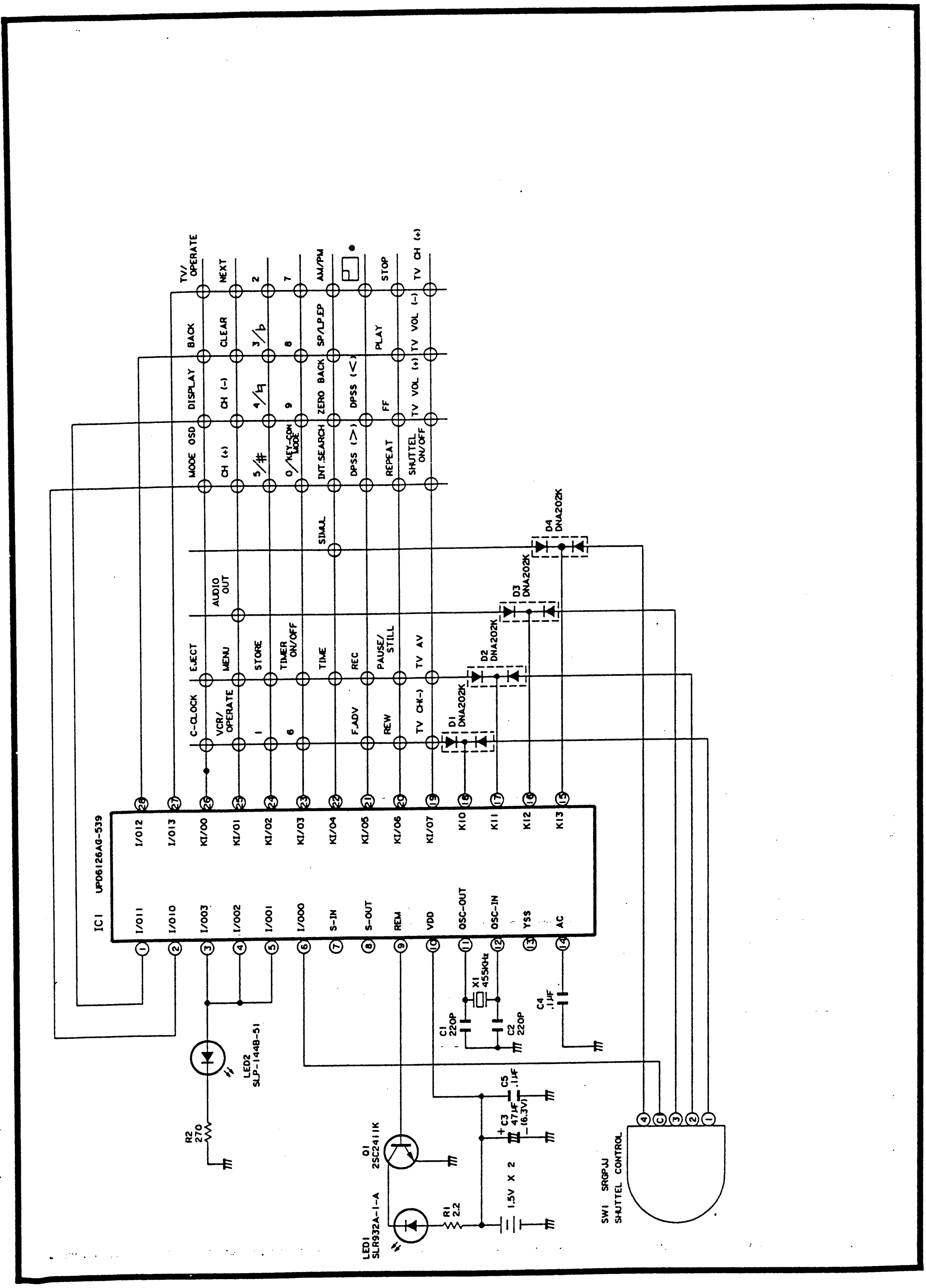
红外线遥控器电路 (VC-H96/VC-H96ETS)


IC1 UPD6126AG-539
I/O12 28
I/O13 27
KI/O0 26
KI/O1 25
KI/O2 24
KI/O3 23
KI/O4 22
KI/O5 21
KI/O6 20
KI/O7 19
KI0 18
KI1 17
KI2 16
KI3 15
I/O11 1
I/O10 2
I/O03 3
I/O02 4
I/O01 5
I/O00 6
S-IN 7
S-OUT 8
REM 9
VDD 10
OSC-OUT 11
OSC-IN 12
VSS 13
AC 14
TV/OPERATE
NEXT
2
7
AM/PM
STOP/STOP
TV CH (+)
BACK
CLEAR
3
8
SP/LP,EP
PLAY/START
TV VOL (-)
DISPLAY
CH (-)
4
9
ZERO BACK
DPSS (<)
FF
TV VOL (+)
MODE OSD
CH (+)
5
0
INT.SEARCH
DPSS (>)
REPEAT
SHUTTEL ON/OFF
SIMUL
AUDIO OUT
EJECT
MENU
STORE
TIMER ON/OFF
TIME
REC
PAUSE/STILL
TV AV
C-CLOCK
VCR/OPERATE
1
6
F.ADV
REW
TV CH(-)
D1 DNA202K
D2 DNA202K
D3 DNA202K
D4 DNA202K
X1 455KHz
C1 220P
C2 220P
C4 .1μF
C5 .1μF
C3 47μF (6.3V)
1.5V X 2
R1 2.2
Q1 2SC2411K
LED1 SLR932A-1-A
LED2 SLP-144B-51
R2 270
SW2
VCR
GAME
SW1 SRGPJJ SHUTTEL CONTROL

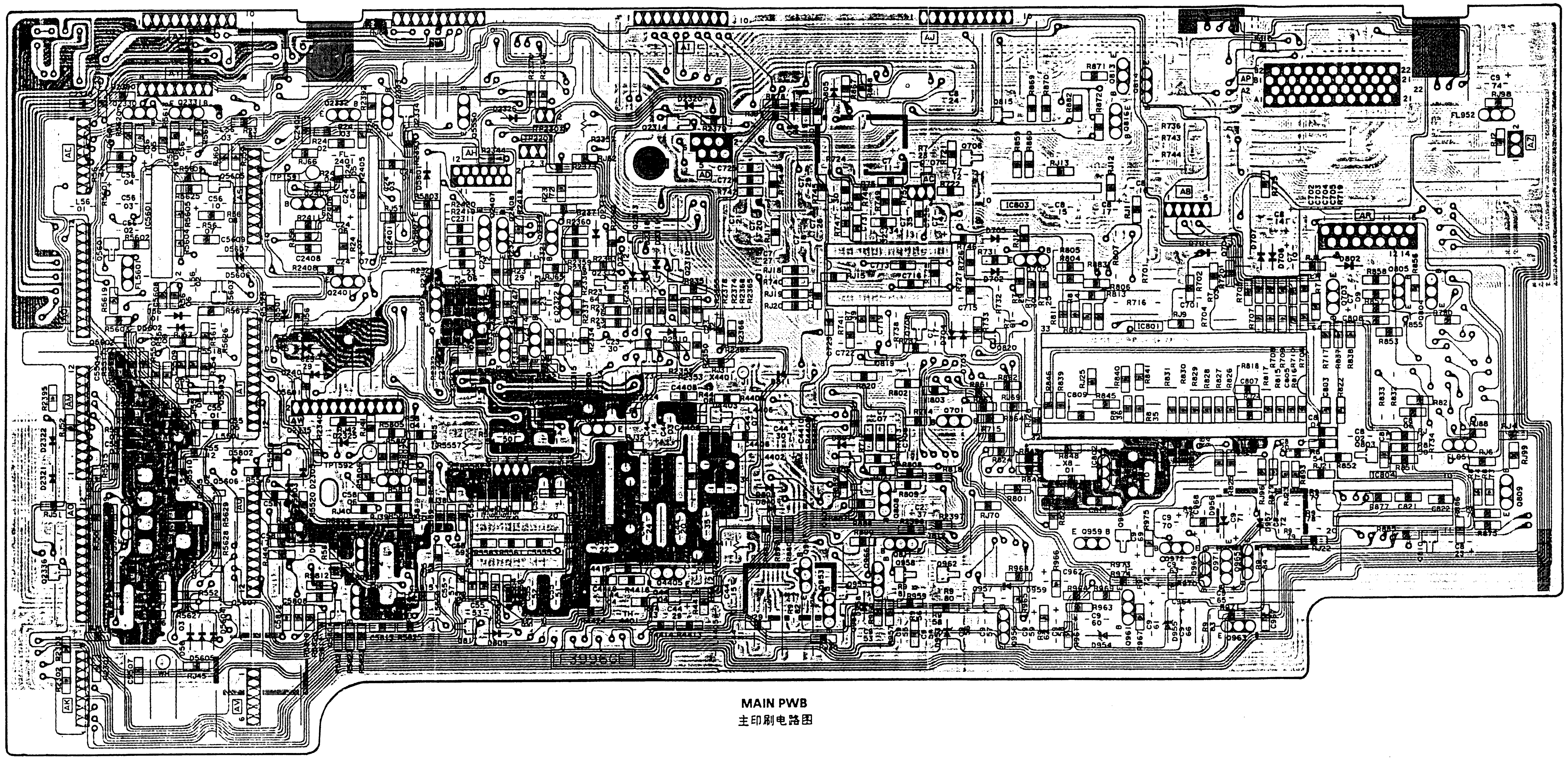
INFRARED REMOTE CONTROL CIRCUIT (VC-H980)
红外线遥控器电路 (VC-H980)


TV/ OPERATE
NEXT
2
7
AM/PM
STOP/STOP
TV CH (+)
BACK
CLEAR
3/♭
8
SP/LP.EP
PLAY/ START
TV VOL (-)
DISPLAY
CH (-)
4/♮
9
ZERO BACK
DPSS (<)
FF
TV VOL (+)
MODE OSD
CH (+)
5/#
0/KEY-CON MODE
INT.SEARCH
DPSS (>)
REPEAT
SHUTTEL ON/OFF
SIMUL
AUDIO OUT
EJECT
MENU
STORE
TIMER ON/OFF
TIME
REC
PAUSE/ STILL
TV AV
C-CLOCK
VCR/ OPERATE
1
6
F.ADV
REW
TV CH(-)
D1 DNA202K
D2 DNA202K
D3 DNA202K
D4 DNA202K
IC1 UPD6126AG-539
I/O12
I/O13
KI/O0
KI/O1
KI/O2
KI/O3
KI/O4
KI/O5
KI/O6
KI/O7
KI0
KI1
KI2
KI3
I/O11
I/O10
I/O03
I/O02
I/O01
I/O00
S-IN
S-OUT
REM
VDD
OSC-OUT
OSC-IN
VSS
AC
X1 455KHz
C1 220P
C2 220P
C4 .1μF
C5 .1μF
C3 47μF (6.3V)
LED2 SLP-148B-51
R2 270
SW2
VCR
GAME
Q1 2SC2411K
LED1 SLR932A-1-A
R1 2.2
1.5V X 2
SW1 SRGPJJ SHUTTEL CONTROL
A
B
C
D
E
F
G
H
1
2
3
4
5
6

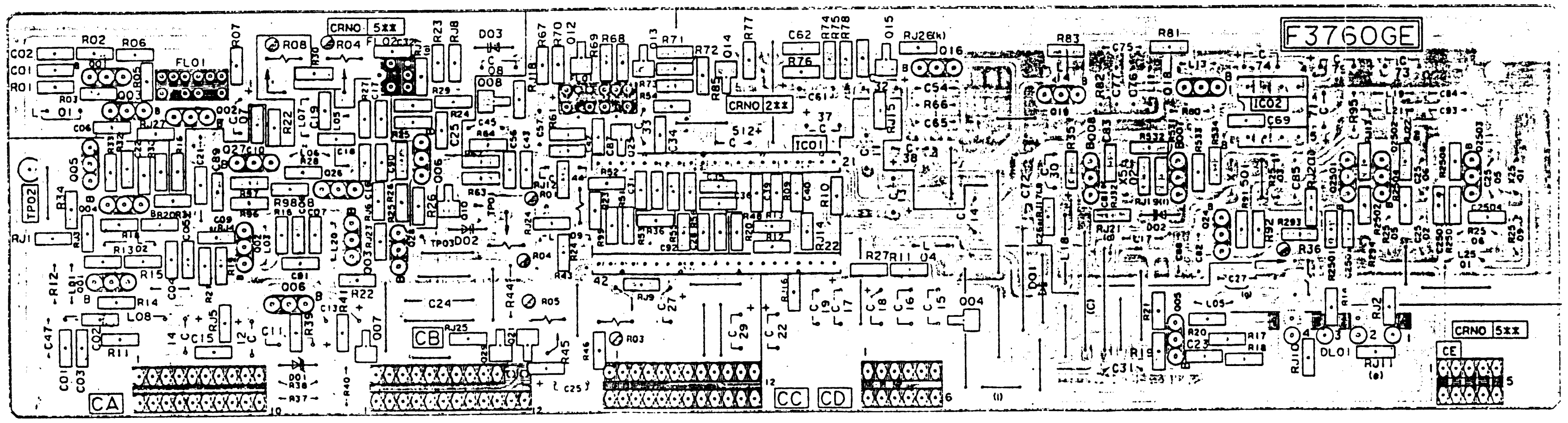
INFRARED REMOTE CONTROL CIRCUIT (VC-H980ETS)
红外线遥控器电路 (VC-H980ETS)


TV/OPERATE
NEXT
2
7
AM/PM
STOP
TV CH (+)
BACK
CLEAR
3/♭
8
SP/LP.EP
PLAY
TV VOL (-)
DISPLAY
CH (-)
4/♮
9
ZERO BACK
DPSS (<)
FF
TV VOL (+)
MODE OSD
CH (+)
5/#
0/KEY-CON MODE
INT.SEARCH
DPSS (>)
REPEAT
SHUTTEL ON/OFF
SIMUL
AUDIO OUT
EJECT
MENU
STORE
TIMER ON/OFF
TIME
REC
PAUSE/STILL
TV AV
C-CLOCK
VCR/OPERATE
1
6
F.ADV
REW
TV CH(-)
D1 DNA202K
D2 DNA202K
D3 DNA202K
D4 DNA202K
IC1 UPD6126AG-539
I/O12
I/O13
KI/O0
KI/O1
KI/O2
KI/O3
KI/O4
KI/O5
KI/O6
KI/O7
KI0
KI1
KI2
KI3
I/O11
I/O10
I/O03
I/O02
I/O01
I/O00
S-IN
S-OUT
REM
VDD
OSC-OUT
OSC-IN
VSS
AC
X1 455KHz
C1 220P
C2 220P
C4 .1μF
C5 .1μF
C3 47μF 6.3V
LED2 SLP-144B-51
R2 270
Q1 2SC2411K
LED1 SLR932A-1-A
R1 2.2
1.5V X 2
SW1 SRGPJJ SHUTTEL CONTROL

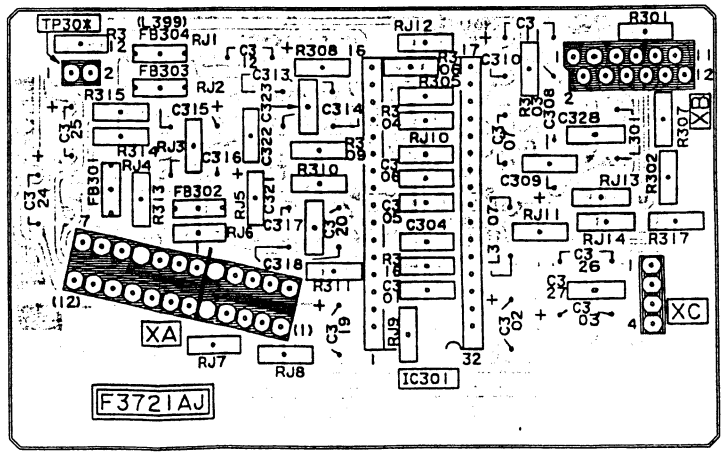
WIRING SIDE PWB
各印刷电路板图



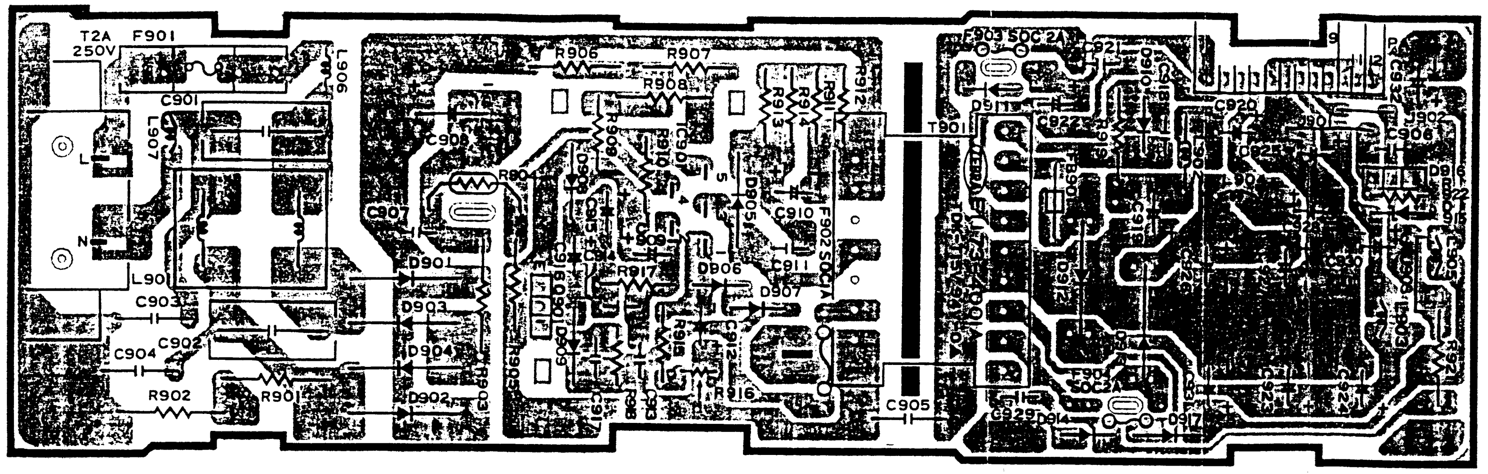
MAIN PWB
主印刷电路图


F3760GE
CA
CB
CC
CD

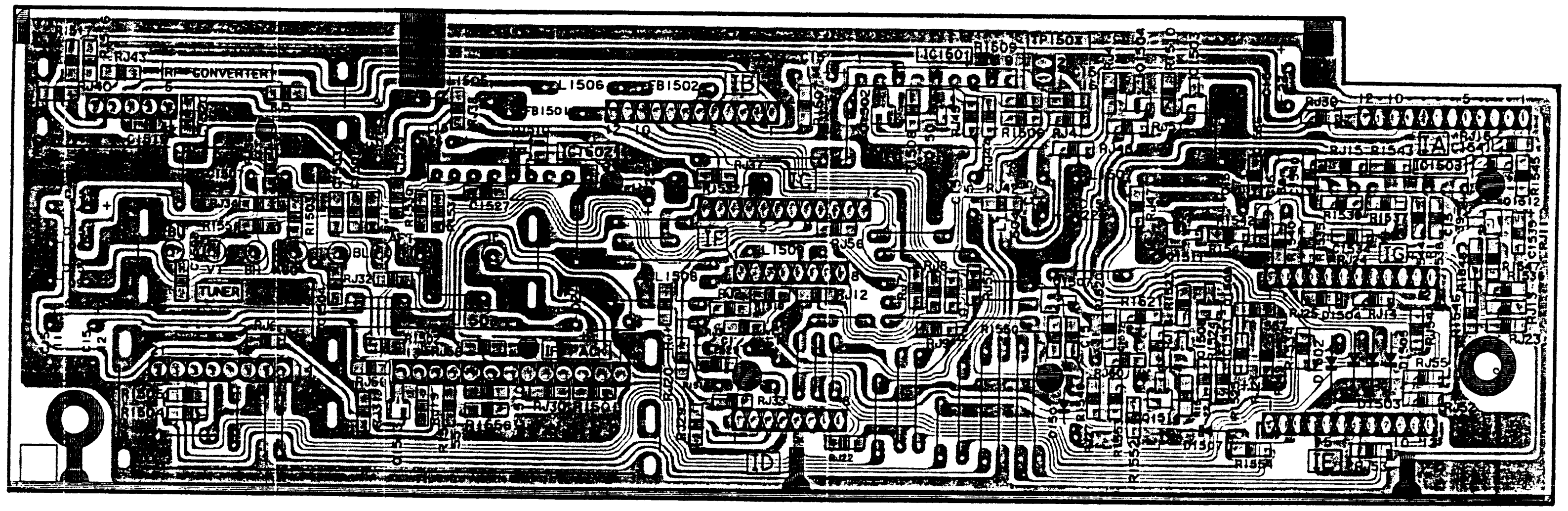
Y/C PWB
Y/C(亮度/色度)印刷电路图


F3721AJ
XA
XB
XC
IC301

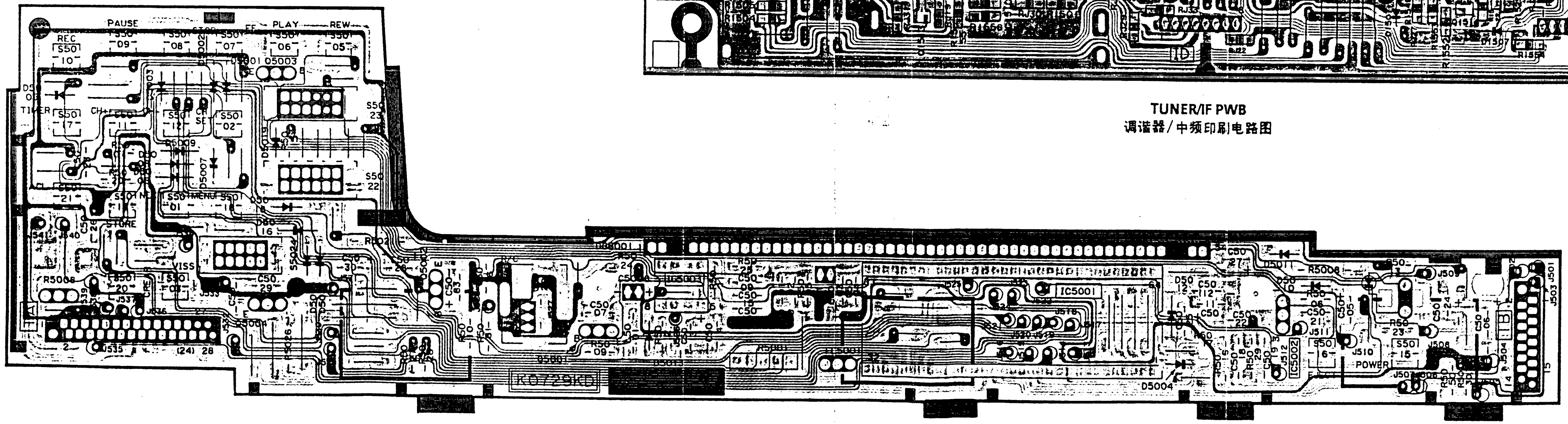
HEAD AMP PWB
前置放大器印刷电路图


T2A
250V
F901
L906
C901
L907
L901
C903
C904
C902
R902
R901
R906
R907
R908
C908
C907
D901
D903
D904
D902
R917
D906
D907
C910
C911
R916
C905
T901
F903 50C 2A
F902 50C 1A
C906
D902

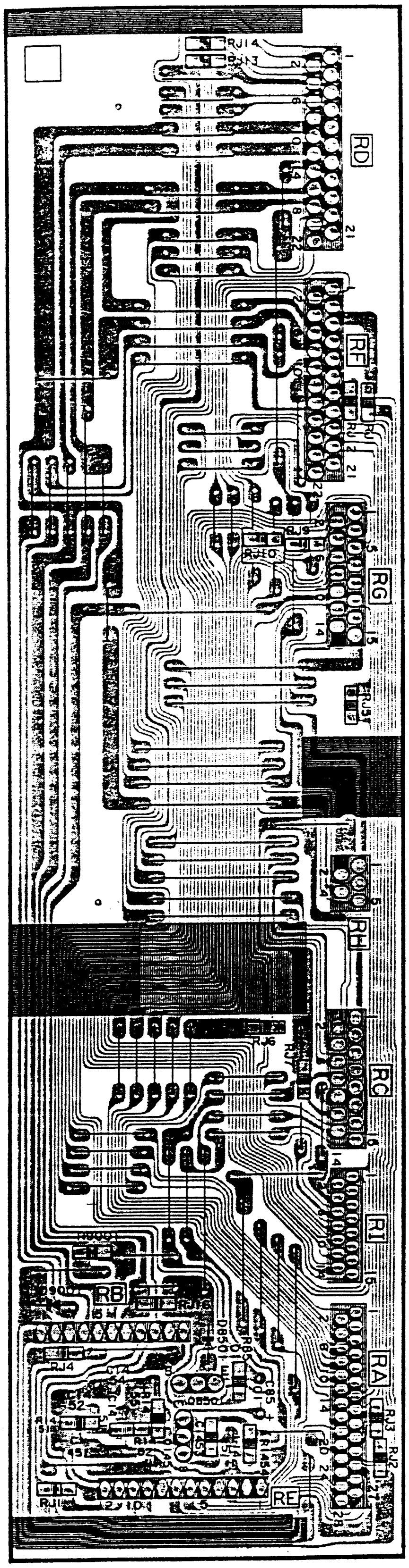
POWER PWB
电源印刷电路图


RF CONVERTER
TUNER
IC1601
TP1501
FB1501
FB1502
L1506
RJ43
RJ15
RJ23
RJ55
RJ22
IC1503

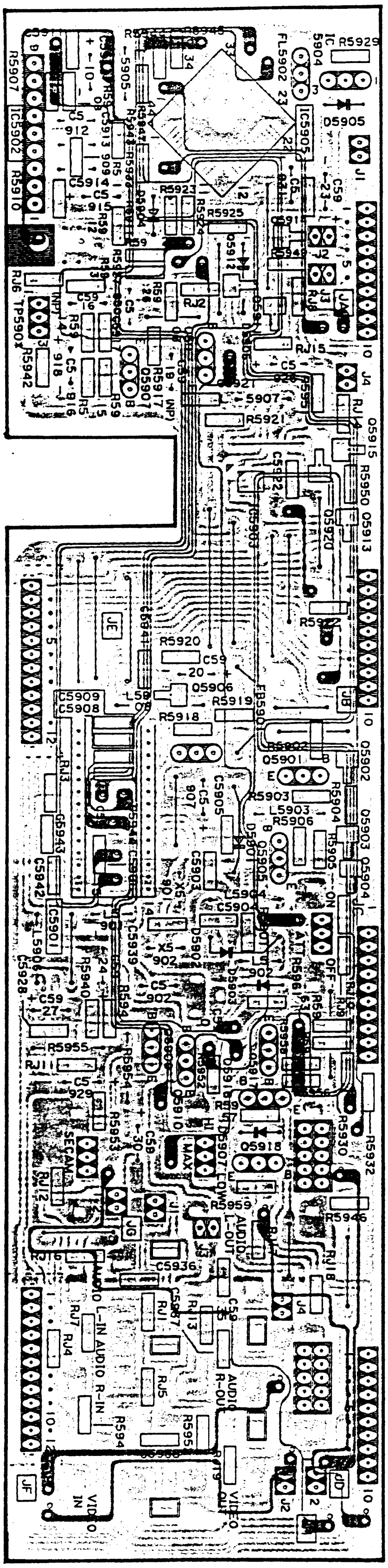
TUNER/IF PWB
调谐器/中频印刷电路图


PAUSE
FF
PLAY
REW
REC
S501 10
S501 09
S501 08
S501 07
S501 06
S501 05
TIMER
STORE
VISS
MENU
D5001
D5003
D5007
D5009
IC5001
IC5002
D5004
D5011
R5008
S501 23
S501 22
S501 21
S501 20
S501 16
S501 15
POWER
J501
J503
J504
J510
J511
KO729KD

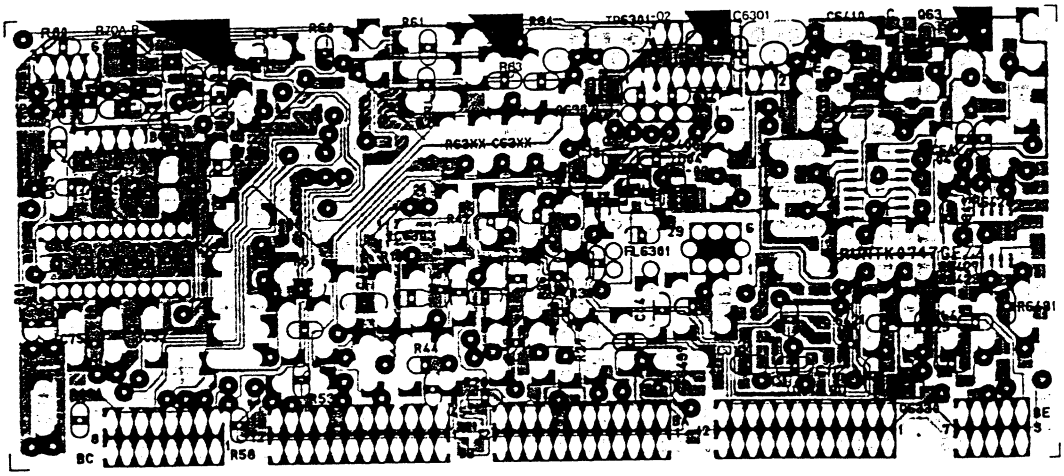
TIMER PWB
定时器印刷电路图


RJ14
RJ13
RD
RF
RG
RH
RC
RI
RB
RA
RE
RJ6
RJ4
RJ3
RJ2
RJ1
D8501
Q8501
C8501

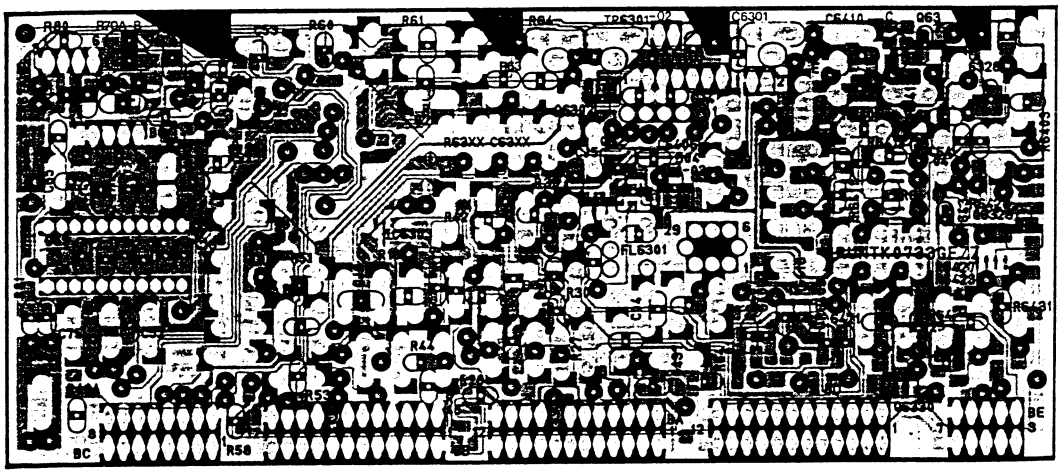
RELAY PWB
继电器印刷电路图


IC5902
IC5905
IC5904
R5929
R5907
R5910
R5923
R5925
R5921
R5920
R5918
R5919
R5902
R5903
R5904
R5905
R5906
R5955
R5959
R5946
R5930
R5932
R5950
Q5901
Q5902
Q5903
Q5904
Q5905
Q5906
Q5907
Q5913
Q5915
Q5918
Q5920
FL5902
L5903
L5904
C5909
C5908
C5936
C5928
C5942
TP5901
JA
JB
JC
JD
JE
JF
JG
J1
J2
J3
J4
RJ15
AUDIO L-IN
AUDIO R-IN
AUDIO L-OUT
AUDIO R-OUT
VIDEO IN
VIDEO OUT
SECAM
ON
OFF
MAX

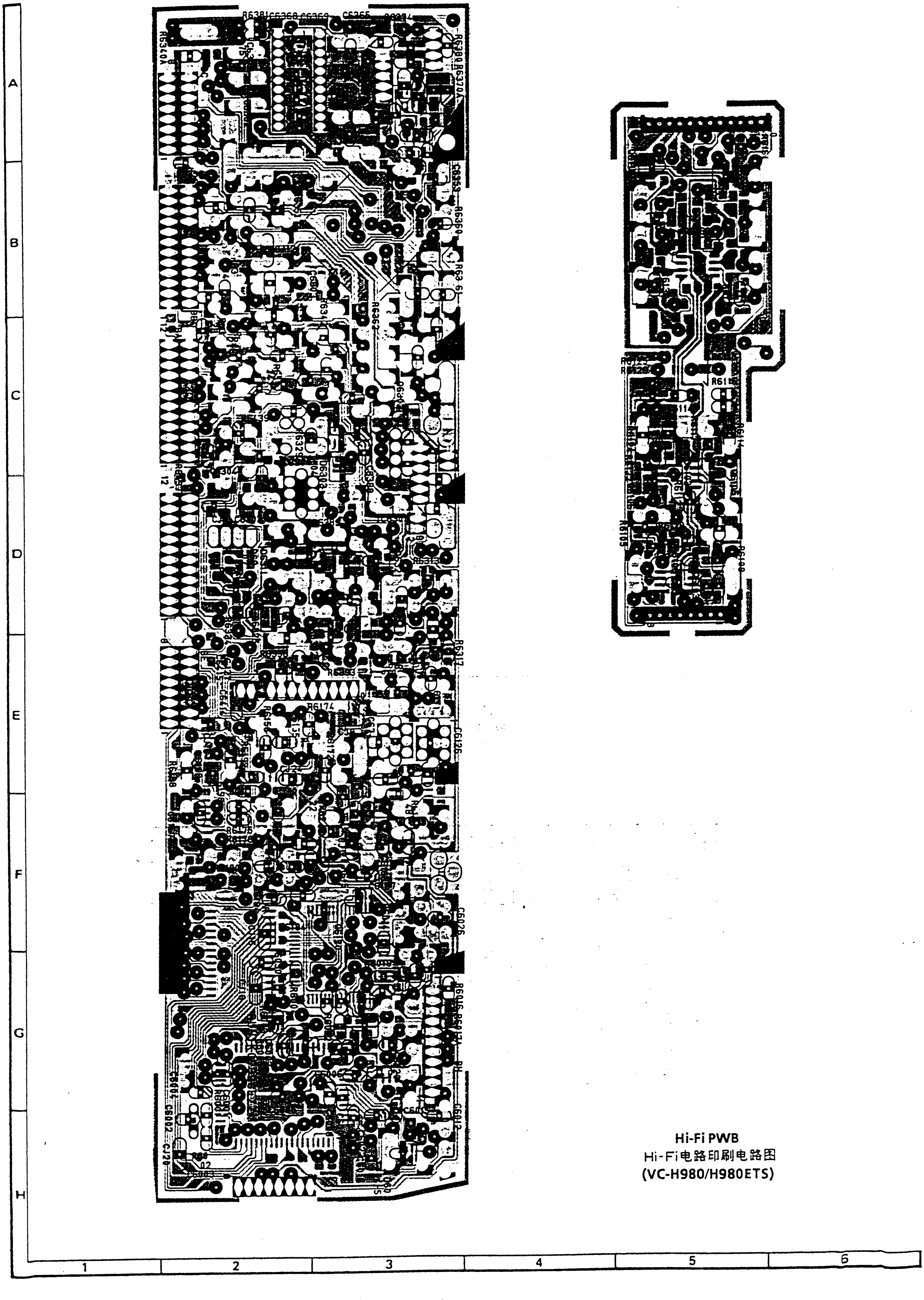
TERMINAL PWB
终端电路印刷电路板


R80
R70A
R60
R61
R84
TP6301-02
C6301
C6410
Q63
R63
R63XX C63XX
FL6301
RUNTK0747GEZZ
R6431
R41
R53
R58
BC
BE
S

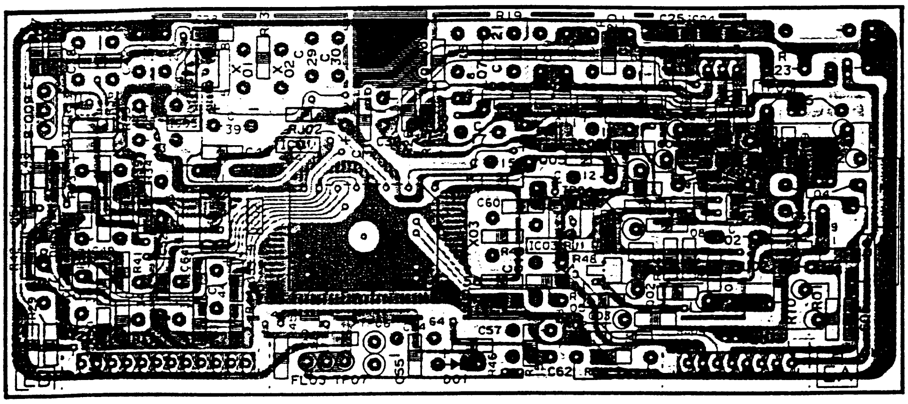
Hi-Fi PWB
Hi-Fi电路印刷电路图
(VC-H91/H91ETS)


R80
R70A
R60
R61
R84
TP6301-02
C6301
C6410
Q63
R63XX C63XX
FL6301
RUNTK0733GEZZ
R6431
R41
R53
R58
BC
BE
S

Hi-Fi PWB
Hi-Fi电路印刷电路图
(VC-H96/H96ETS)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
R6381
R6370A
R6360
R6174
C6126
C6026
R6046
C6012
C6002
R6148
R6105

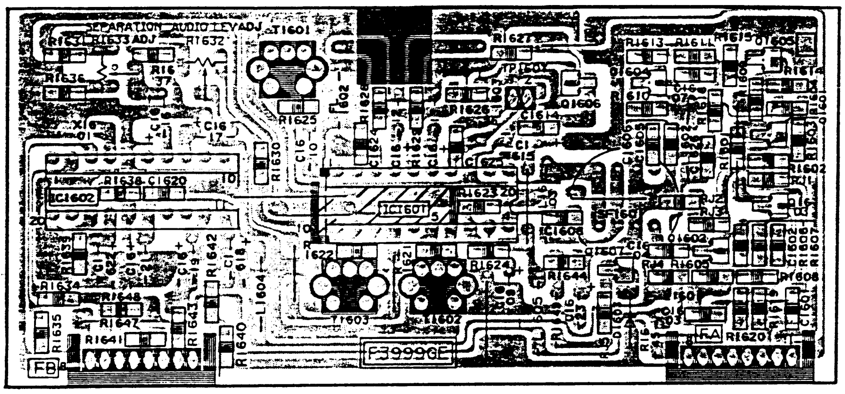
Hi-Fi PWB
Hi-Fi电路印刷电路图
(VC-H980/H980ETS)


IC03
X03
C60
C57
C62
RJ02
FL03
TP07
D01

NICAM PWB

NICAM电路印刷电路图

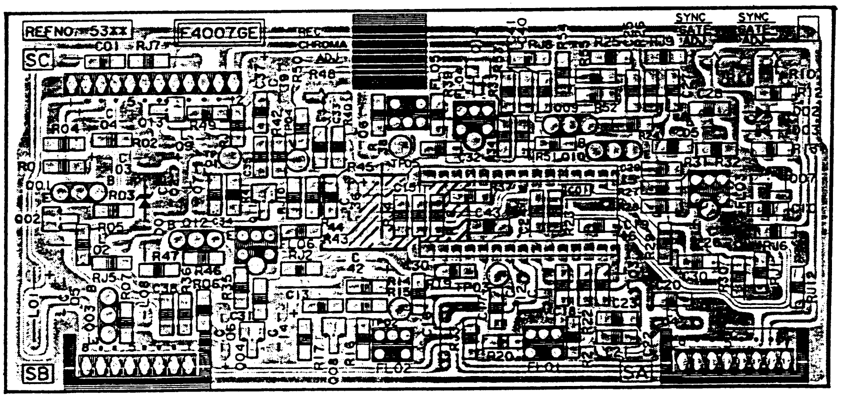
(VC-H96/H96ETS/H980/H980ETS)


SEPARATION ADJ.
AUDIO LEV.ADJ.
T1601
IC1601
IC1602
T1603
L1602
FB
FA
F3999GE

SIF/MPX PWB

SIF/MPX 印刷电路图

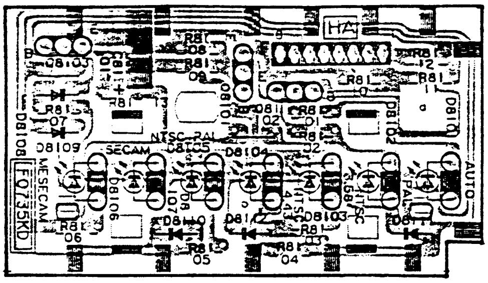
(VC-H96/H96ETS/H980/H980ETS)


REF NO. 53xx
E4007GE
REC CHROMA ADJ.
SYNC GATE ADJ.
SYNC GATE ADJ.
SC
SB
SA
FL01
FL02

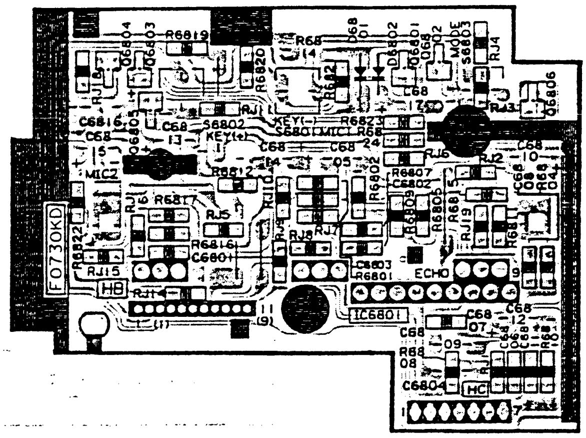
SECAM CHROMA PWB

SECAM色度电路印刷电路图

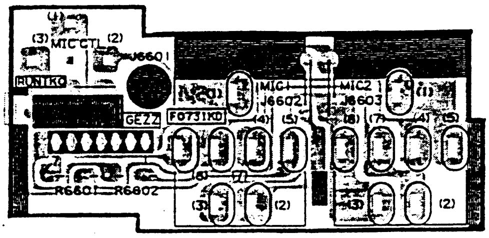
(VC-H91/H91ETS)


HA
NTSC-PAL
SECAM
ME SECAM
AUTO
F0735KD
D8101
D8102
D8103
D8104
D8105
D8106
D8108
D8109
D8110
D8112
D8113

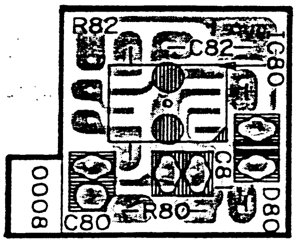
LED PWB
液晶显示器印刷电路图
(VC-H91/H91ETS/H96/H96ETS)


F0730KD
H8
HC
MIC2
KEY(-)
KEY(+)
S6801 MIC1
S6802
MODE
ECHO
IC6801
RJ15
R6819
R6822
C6801
C6803
R6801

MIC AMP PWB
麦克风放大器印刷电路图
(VC-H980/H980ETS)


MIC CTL
J6601
MIC1
J6602
MIC2
J6603
F0731KD
GEZZ
R6601
R6602

MIC JACK PWB
麦克风插座电路印刷电路图
(VC-H980/H980ETS)


R82
C82
C80
C8
D80
R80
8000

R/C RECEIVER PWB
遥控信号接收器电路印刷电路板

REPLACEMENT PARTS LIST

PARTS REPLACEMENT

Many electrical and mechanical parts in video cassette recorder have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

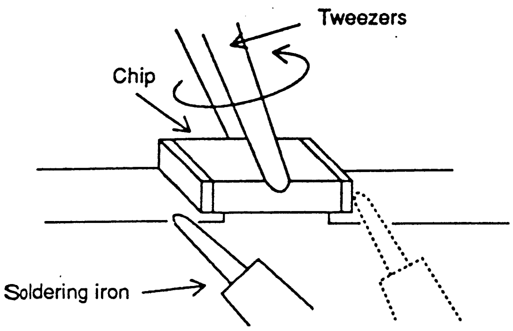
1. MODEL NUMBER **2. REF. NO.**
3. PART NO. **4. DESCRIPTION**
5. PRICE CODE

Precautions for replacing the chip

1. Before replacing the chip, make sure that the power is off.
2. When using tweezers, take care not to damage the chip surface with them.
3. Do not reuse removed chips.
4. Do not rub the chip electrodes.
5. Do not apply excessive pressure to the chip.
6. Use a pencil-type soldering iron if possible.
7. Keep each soldered spot less than 0.5mm in diameter.
8. Do not heat solder for more than 3 seconds.
9. Keep the soldering temperature at 260°C or less.

Removing the chip (diodes, transistors)

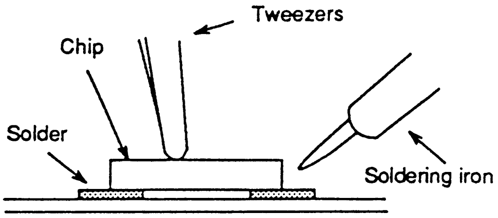
1. Remove the solder completely from both ends of the chip using a braided wire or like.
2. As shown in the figure below, while holding the soldering iron against both ends of the chip alternately, twist the tweezers (in the direction of the arrow) to remove the chip.



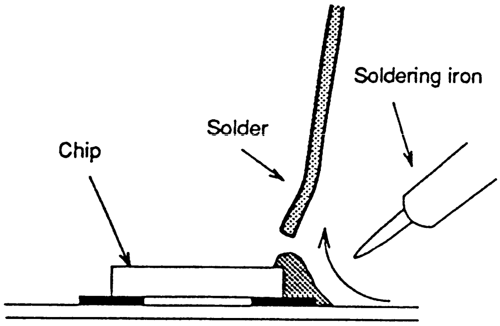
Note:
Be careful not to damage other chips.

Mounting the chip

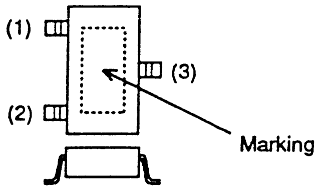
1. Place solders in advance at the spots where the chip is to be mounted.
2. Hold the chip down temporarily with tweezers.



3. Solder both ends of the chip.
(For the chip transistor, solder its three leads.)



HOW TO IDENTIFY CHIP TRANSISTORS AND DIODES BY ITS MARKING



(1) Base/Input
(2) Emitter/Ground
(3) Collector/Output

Fig.-1

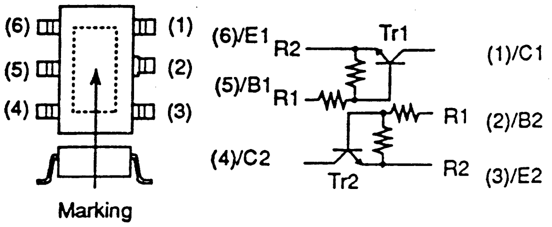


Fig.-2

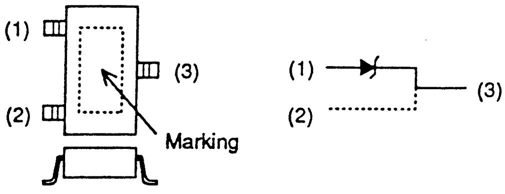
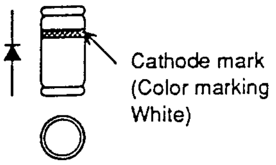


Fig.-3

Fig. 7



Package	Marking	Parts No.
Fig. 1/	FQ	VS2SA1037KQ-1
Fig. 1/	SY	VS2SA1162Y/-1
Fig. 1/	BQ	VS2SC2412KQ-1
Fig. 1/	LY	VS2SC2712Y/-1
Fig. 1/	ND	VS2SD1306-D1E
Fig. 1/	1DS	VS2SD1328-S-1
Fig. 1/	AAS	VS2SD1757KS-1
Fig. 1/	15	VSDTA124EK/-1
Fig. 1/	16	VSDTA144EK/-1
Fig. 1/	22	VSDTC123EK/-1
Fig. 1/	25	VSDTC124EK/-1
Fig. 1/	26	VSDTC144EK/-1
Fig. 1/	6B	98M-UN2112///
Fig. 1/	6C	98M-UN2113///
Fig. 1/	8B	98M-UN2212///
Fig. 3/	8R	98M-XN4212///
Fig. 2/	101	98M-RD10MB1//
Fig. 2/	563	98M-RD5R6MB3/
Fig. 7/	---	98M-MA221////

⚠ MARK: SAFETY RELATED PARTS

PWB ASSEMBLY IS NOT REPLACEMENT ITEM

Ref. No.	Part No.	Description	Code

MAIN CIRCUIT

	DUNTK3996XM52	Main Board Assembly (VC-H91, VC-H91ETS)	—
	DUNTK3996XM50	Main Board Assembly (VC-H96, VC-H96ETS)	—
	DUNTK3996XM53	Main Board Assembly (VC-H980, VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q701, 804, 805, 816, 972, 2320, 2321, 2322, 2407, 5502, 5802, 5805	VS2SC945APQ1E	2SC945APQ	AB
Q702, 703, 2307, 2315, 2402, 4401, 4405, 5801	VS2SA733APQ1E	2SA733APQ	AC
Q704, 707, 708, 810, 820, 2312, 2313, 5501, 5503, 5606, 5607	VSBC857B3F/-1	BC857B3F (VC-H91, VC-H91ETS)	AA
Q706, 803, 954, 957, 2310, 4403, 4404, 5504, 5506, 5601, 5803, 5804	VSBC847B1F/-1	BC847B1F	AA
Q806 818, 819, 960, 962, 5605	VSUN2212///-1	UN2212	AA
Q807, 812, 815, 955, 958, 2314	VSUN2112///-1	UN2112 (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AA
Q808, 811	VSKRA103M//-1	KRA103M (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AA
Q813, 814, 959	VSKRC103M//-1	KRC103M	AA

Ref. No.	Part No.	Description	Code
Q953,	VS2SD468-C/-1	2SD468-C	AD
956,			
963,			
965,		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
966,			
967,			
971			
Q961	VS2SA1271-Y-1	2SA1271-Y	AB
Q964	VS2SC3198-Y-1	2SC3198-Y	AA
Q2311,	VSUN2213///-1	UN2213	AA
2324,			
2334,			
2335,			
2336,		(VC-H980, VC-H980ETS)	
5505,			
5602,		(VC-H91, VC-H91ETS)	
5603,			
5604		(VC-H91, VC-H91ETS)	
Q2330,	VSKRC104M//-1	KRC104M (VC-H91, VC-H91ETS)	AA
2331,			
2332,			
2333,			
2401,			
5550,			
5807			
Q2408	VSKRA104M//-1	KRA104M	AA

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC702	RH-iX0981GEZZ		AH
IC801	RH-iX0726GEZZ		AX
IC802	VHiPST529D2-1		AD
IC803	VHiBA6209//-1		AK
IC804	VHiM66006P/-1		AK
IC2401	VHiLA7210//-1		AH
IC4401	VHiTL8811P/-1		AM
IC4402	VHiTA7347P/-1		AG
IC5501	VHiM52063SP-1		AP
IC5601	VHiBA7025L/-1		AP

DIODES AND CRYSTALS

Ref. No.	Part No.	Description	Code
D701	VHD1SS119//-1	1SS119	AB
|			
707,			
801,			
802,			
805,			
807,			
808,			
810,			
811,			
957,			
958,			
959,			
2305,			
2310			
|			
2313,			
2315,			
2318,			
2320,			
2321,		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
2322,		(VC-H980, VC-H980ETS)	
2325,			
2326,			
2401,			
5501,			
5502,			
5601,			
5602,			
5603,		(VC-H91, VC-H91ETS)	
5604,		(VC-H91, VC-H91ETS)	
5605,		(VC-H91, VC-H91ETS)	
5606,			
5607,			
5801,			
5802,		(VC-H91, VC-H91ETS)	
5803			
D953	RH-EX0155GEZZ	10B2	AA
D954	RH-EX0156GEZZ	10EB3	AA
D955,	RH-EX0138GEZZ	5.6EB3 (VC-H91, VC-H91ETS)	AA
956			
D955	RH-EX0139GEZZ	6.2EB1 (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AA
TH4401	RH-HZ0031GEZZ	Thermistor	AB
X801	RCRSB0136GEZZ	Crystal, 7.16MHz	AF
X4401	RCRSB0111GEZZ	Crystal, 13.566MHz	AG

PACKAGED CIRCUIT

Ref. No.	Part No.	Description	Code
PR5501	RMPTP0011GEZZ		AE

CONTROLS

Ref. No.	Part No.	Description	Code
R701	RVR-M4632GEZZ	100k(B)PAL Phase Generator Adj.	AB
R704	RVR-M4351GEZZ	680k(B)NTSC Phase Generator Adj.	AB
R2357	RVR-M4415GEZZ	10k(B) Picture Control Adj.	AB
R4411	RVR-M4328GEZZ	2.2k(B) Level Adj.	AB
R5557	RVR-M4625GEZZ	6.8k(B)	AB

COILS AND DELAY LINES

Ref. No.	Part No.	Description	Code
DL5501	RCiLZ0293GEZZ	Delay Line	AP
DL5502	RCiLZ0208GEZZ	Delay Line	AN
DL5801	RCiLZ0183GEZZ	Delay Line	AK
FL2401	RFiLA0020GEZZ	Filter	AC
FL5601	RFiLC0120GEZZ	Filter	AD
L2301, 5550	VP-DF221K0000	220µH	AB
L2306	VP-XF151K0000	150µH	AB
L2307, 2311, 4404	VP-XF470K0000	47µH	AB
L2310, 2312	VP-XF150K0000	15µH	AB
L4402, 5802	VP-DF101K0000	100µH	AB
L4403	VP-XF330K0000	33µH	AB
L4405	VP-DF680K0000	68µH	AB
L4406, 4407	VP-XF6R8K0000	6.8µH	AB
L5501	VP-MK180K0000	18µH	AB
L5601	VP-XF101K0000	100µH	AB
L5602	RCiLP0043GEZZ	6.8mH	AC
L5603	VP-MK221K0000	220µH	AB
L5801	VP-XF120K0000	12µH	AB

CAPACITORS

Ref. No.	Part No.	Description	Code
C701, 715, 824, 5501	VCFYSA1HB473J	0.047µF, 50V, 5%, Mylar	AA
C710, 714, 802	VCEAEA0JW107M	100µF, 6.3V, 20%, Electrolytic	AB
C717	VCE9EA1HW225M	2.2µF, 50V, 20%, Electrolytic (N.P.)	AB
C722	VCE9EA1HW105M	1µF, 50V, 20%, Electrolytic (N.P.)	AC
C727, 4431	VCFYSA1HB104J	0.1µF, 50V, 5%, Mylar	AB
C732	VCE9EA1CW226M	22µF, 16V, 20%, Electrolytic (N.P.)	AC
C735	VCFYSA1HB333J	0.033µF, 50V, 5%, Mylar	AE
C815	RC-KZ0011GEZZ	0.1µF, Ceramic	AA
C816	VCE9EA1HW335M	3.3µF, 50V, 20%, Electrolytic (N.P.)	AB
C817	VCEAGA1EW107M	100µF, 25V, 20%, Electrolytic	AD
C972, 2403	VCFYSA1HB224J	0.22µF, 50V, 5%, Mylar	AB
C974, 2407, 4422, 5611	VCEAEA1CW107M	100µF, 16V, 20%, Electrolytic	AC
C2329	VCE9EA1CW106M	10µF, 16V, 20%, Electrolytic (N.P.)	AC
C4424	VCFYSA1HB394J	0.39µF, 50V, 5%, Mylar	AC
C5551, 5552	RC-QZA332TAYJ	0.0033µF, Mylar	AB
C5557	VCRYPA1HA561J	560pF, 50V, 5%, Mylar	AB
C5603	VCFYSA1HB563J	0.056µF, 50V, 5%, Mylar	AA

RESISTORS

Ref. No.	Part No.	Description	Code
R723, 724	VRN-RA2BK273F	27k ohm, 1/8W, 1%, Metal Film	AA

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGN0228TAZZ	Plug, 2 pin (TP2301-2302)	AB
	QPLGN0328TAZZ	Plug, 3 pin (TP2201-2203, TP5501-5503 (Except VC-H980, VC-H980ETS))	AD
	QPLGN0378GEZZ	Plug, 3 pin (AC)	AB
	QPLGN0428TAZZ	Plug, 4 pin (TP5501-5504) (VC-H980, VC-H980ETS)	AB
	QPLGN0578GEZZ	Plug, 5 pin (AB)	AB
	QPLGN0579GEZZ	Plug, 5 pin (AK) (Except VC-H980, VC-H980ETS)	AB
	QPLGN0679GEZZ	Plug, 6 pin (AV)	AB
	QPLGN0878GEZZ	Plug, 8 pin (AY)	AC
	QPLGN0879GEZZ	Plug, 8 pin (AK) (VC-H980, VC-H980ETS)	AB
	QPLGN0879GEZZ	Plug, 8 pin (AL, AS (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS))	AB
	QPLGN1079GEZZ	Plug, 10 pin (AS) (VC-H91, VC-H91ETS)	AB
	QPLGN1278GEZZ	Plug, 12 pin (AW) (VC-H91, VC-H91ETS)	AC
	QPLGN1279GEZZ	Plug, 12 pin (AM, AO, AQ, AT, AU)	AC
	QSOCN0694GEZZ	Socket, 6 pin (AD)	AB
	QSOCN1270REZZ	Socket, 12 pin (AH)	AC
	QSOCN1594GEZZ	Socket, 15 pin (AR)	AD

Ref. No.	Part No.	Description	Code
	QSOCZ1040GEZZ	Socket, 10 pin	AC
		(AG, AI, AJ, AX)	
	QSOCZ4445GEZZ	Socket, 44 pin (AP)	AK

Y/C CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3760XM58	Y/C Board Assembly	—
		(VC-H91, VC-H91ETS)	
	DUNTK3760XM57	Y/C Board Assembly	—
		(VC-H96, VC-H96ETS,	
		VC-H980, VC-H980ETS)	

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q201	VS2C1740SQR1E	2SC1740SQR	AC
|			
204,			
218,			
224,			
226,		(VC-H91, VC-H91ETS)	
227,		(VC-H91, VC-H91ETS)	
502,			
505			
|			
508,			
2502,			
2503			
Q205,	VSDTC144ES/-1	DTC144ES	AB
228,		(VC-H91, VC-H91ETS)	
503			
Q206	VS2SD471-KL1E	2SD471-KL	AC
Q207,	VS2SC2412KQ-1	2SC2412KQ	AA
212			
|			
215			
Q208	VSDTA144EK-1	DTA144EK	AC
Q219,	VS2SA933QR1E	2SA933SQR	AB
501			
Q221,	VSDTC144EK/-1	DTC144EK	AB
225			

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC201	RH-iX1013GEZZ		AV
IC202	VHiLC8992//-1		AK

DIODES AND CRYSTALS

Ref. No.	Part No.	Description	Code
D201	RH-EX0616GEZZ	MTZJ5.6C	AA
D202,	RH-DX0053GEZZ	1SS132	AA
203,			
502			
TH201	RH-HZ0035GEZZ	Thermistor	AB
X501	RCRSB0114GEZZ	Crystal, 4.43MHz	AG
X502	RCRSB0133GEZZ	Crystal, 3.58MHz	AF
X2501	RCRSB0121GEZZ	Crystal, 8.93MHz	AH

CONTROLS

Ref. No.	Part No.	Description	Code
R201,	RVR-M4415GEZZ	10k(B) PB-Y Level Adj.	AB
203,		10k(B) EE Level Adj.	
205		10k(B) FM Carrier Adj.	
R204	RVR-M4414GEZZ	6.8k(B) Deviation Adj.	AB
R208	RVR-M4409GEZZ	1k(B) REC FM Level Adj.	AB
R504	RVR-M4411GEZZ	2.2k(B) REC Chroma	AB
		Level Adj.	

COILS AND FILTERS

Ref. No.	Part No.	Description	Code
DL501	RCiLZ0292GEZZ	Delay Line	AP
FL201	RCiLF0217GEZZ	Filter	AG
FL501	RCiLF0191GEZZ	Filter	AG
FL502	RCiLF0216GEZZ	Filter	AD
L201	VP-XF150K0000	15µH	AB
L202	VP-XF330K0000	33µH	AB
L203	VP-XF180K0000	18µH	AB
L205,	VP-XF151K0000	150µH	AB
207,			
220		(VC-H91, VC-H91ETS)	
L206,	VP-XF680K0000	68µH	AB
209			
L208	VP-DF470K0000	47µH	AB
L211	VP-XF560K0000	56µH	AB
L213,	VP-MK120K0000	12µH	AB
2501			
L214	VP-MK221K0000	220µH	AB
L217	VP-XF5R6K0000	5.6µH	AB
L218	VP-DF221K0000	220µH	AB
L219	VP-XF270K0000	27µH	AB
L221	VP-XF100K0000	10µH	AB
L299	VP-MK4R7K0000	4.7µH	AB
L501	VP-MK561K0000	560µH	AB
L504	VP-MK220K0000	22µH	AB

CAPACITORS

Ref. No.	Part No.	Description	Code
C227	VCEAGA1AW107M	100µF, 10V, 20%,	AB
		Electrolytic	
C511,	RC-QZA223TAYJ	0.022µF, Mylar	AB
516			
C514,	VCFYSA1HB473J	0.047µF, 50V, 5%, Mylar	AA
519			

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QSOCN0679GEZZ	Socket, 6 pin (CD)	AC
	QSOCN0852REZZ	Socket, 8 pin (CA) (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AB
	QSOCN1052REZZ	Socket, 10 pin (CA) (VC-H91, VC-H91ETS)	AC
	QSOCN1252REZZ	Socket, 12 pin (CB, CC)	AC

Hi-Fi CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0747GEZZ	Hi-Fi Board Assembly (VC-H91, VC-H91ETS)	—
	RUNTK0733GEZZ	Hi-Fi Board Assembly (VC-H96, VC-H96ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q6301	VS2SC3939R/-1	2SC3939R	AD
Q6302	98M-DTC363TK/	DTC363TK	AC
Q6303, 6307, 6308, 6309, 6329, 6333	98M-DTC144EK/	DTC144EK (VC-H96, VC-H96ETS)	AB
Q6304	98M-DTC143TK/	DTC143TK	AB
Q6305, 6306, 6316 | 6319	98M-XN4213/-1	XN4213	AB
Q6310, 6327, 6332	98M-DTA124EK/	DTA124EK	AB
Q6311, 6312, 6313	VS2SD1306//-1	2SD1306	AC
Q6314, 6315	98M-XN4216/-1	XN4216	AB
Q6328, 6330, 6331	VS2SC2712Y/-1	2SC2712Y (VC-H96, VC-H96ETS)	AB
Q6334	VS2SD655DETZ1	2SD655DETZ	AB
Q6335	VS2SD1306//-1	2SD1306	AC

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC6301	VHiBA7755//-1		AD
IC6303	VHiAN3963FB-1		AU
IC6304	VHiAN3317//-1		AH
IC6306	VHiμPD4053G-1	(VC-H96, VC-H96ETS)	AE
IC6307	VHiM62302FP-1		AN

DIODES

Ref. No.	Part No.	Description	Code
D6303 | 6306	98M-HSM2838C/	HSM2838C	AB
D6312	98M-RD4R3MB3/	Zener Diode (VC-H96, VC-H96ETS)	AB
D6315, 6317	98M-RD5R1MB1/	Zener Diode	AB
D6316, 6318	98M-HSM2836C/	HSM2836C	AB

CONTROLS

Ref. No.	Part No.	Description	Code
R6306	98MVZ066HB504	500k(B) Bias Current Adj. (VC-91, VC-H91ETS)	AC
R6306	98MVZ066LB504	500k(B) Bias Current Adj. (VC-H96, VC-H96ETS)	AC
R6349, 6366	98MVZ066HB203	20k(B) E-E Gain Adj. (VC-H91, VC-H91ETS) E-E Gain Adj. (VC-H91, VC-H91ETS)	AB
R6349, 6366	98MVZ066LB203	20k(B) E-E Gain Adj. (VC-H96, VC-H96ETS) E-E Gain Adj. (VC-H96, VC-H96ETS)	AB

TRIMMING RESISTORS

Ref. No.	Part No.	Description	Code
R6367A, 6370A, 6371A	98MCR18-511MT	510 ohm NTSC FM Carrier Adj. NTSC FM Carrier Adj. PAL FM Carrier Adj.	AA
R6367B, 6370B	98MCR18-392MT	3.9k ohm NTSC FM Carrier Adj. NTSC FM Carrier Adj.	AA
R6368A	98MCR18-203MT	20k ohm PAL FM Carrier Adj. (VC-H91, VC-H91ETS)	AA
R6368A	98MCR18-243MT	24k ohm PAL FM Carrier Adj. (VC-H96, VC-H96ETS)	AA
R6368B	98MCR18-302MT	3k ohm PAL FM Carrier Adj.	AA

Ref. No.	Part No.	Description	Code
R6371B	98MCR18-103MT	10k ohm PAL FM Carrier Adj.	AA
FILTER, COILS AND TRANSFORMERS			
L6301	98MEL66RA221K	220µH	AB
L6302	98M-L03VB820K	82µH	AB
L6303	98MEL67RA682K	6.8mH	AB
FL6301	RCiLi0060GEZZ	Filter, 70kHz	AD
T6301	RTRNH0053GEZZ	Bias Osc.	AE
CAPACITORS			
C2412	98MECEA1CN100	10µF, 16V, Electrolytic (N.P.) (VC-H96, VC-H96ETS)	AB
C6305	98MECQP1-562J	5600pF, 100V, 5%, Polypro Film	AD
C6328, 6343, 6360	98MECEA1AU101	100µF, 10V, Electrolytic	AB
C6388	98MECEA1HNR22	0.22µF, 50V, Electrolytic (N.P.) (VC-H96, VC-H96ETS)	AB
C6391	98MECEA1CU101	100µF, 16V, Electrolytic (VC-H96, VC-H96ETS)	AB
RESISTORS			
R6304, 6442	VRG-SC2EB4R7J	4.7 ohm, 1/4W, 5%, Fuse Resistor	AB
MISCELLANEOUS			
	98MiLS-2P-S2T	Plug, 2 pin (TP6301-6302)	AA
	98MiLS-4P-S2L	Plug, 4 pin (TP6303-6306) (VC-H91, VC-H91ETS)	AB
	98MiLS-4P-S2T	Plug, 4 pin (TP6303-6306) (VC-H96, VC-H96ETS)	AB
	98MJST12MQ-ST	Socket, 12 pin (BA, BB, BD)	AD
	98MJST08MQ-ST	Socket, 8 pin (BC)	AC
	98MJST05MQ-ST	Socket, 5 pin (BE)	AC
	98MB6B-PH-K-S	Plug, 6 pin (BF)	AB
	98MB4B-PH-K-S	Plug, 4 pin (BG)	AB
	98MB2B-PH-K-S	Plug, 2 pin (BI)	AA
Hi-Fi CIRCUIT			
	RUNTK0732GEZZ	Hi-Fi Board Assembly (VC-H980, VC-H980ETS)	—

Ref. No.	Part No.	Description	Code
TRANSISTORS			
Q6023, 6103, 6322	VS2SA1162Y/-1	2SA1162Y	AB
Q6024, 6102	98M-DTC124EK/	DTC124EK	AB
Q6101	VS2SD1306//-1	2SD1306	AC
Q6104 | 6107, 6115, 6118, 6119, 6121, 6122, 6321, 6325	VS2SC2712Y/-1	2SC2712	AB
Q6108 | 6113, 6304	98M-DTC143TK/	DTC143TK	AB
Q6114 6116, 6310, 6327, 6332	98M-DTA124EK/	DTA124EK	AB
Q6117	98M-DTC363TK/	DTC363TK	AC
Q6120, 6303, 6307, 6308, 6309, 6323, 6333	98M-DTC144EK/	DTC144EK	AB
Q6301	VS2SC3939R/-1	2SC3939R	AD
Q6302	98M-DTC363TK/	DTC363TK	AC
Q6305, 6306, 6316 | 6319	98M-XN4213/-1	XN4213	AB
Q6311, 6312, 6313	VS2SD1306//-1	2SD1306	AC
Q6314, 6315	98M-XN4216/-1.	XN4216	AB
Q6320	VS2SC2001LK-1	2SC2001LK	AA
Q6324	VS2SB1413//-1	2SB1413	AE
INTEGRATED CIRCUITS			
IC6001	VHiYSS205//-1		BF
IC6002	RH-iX1799CEZZ		AT

Ref. No.	Part No.	Description	Code
IC6003	VHiPST529D2-1		AD
IC6004	RH-iX0840GEZZ		AT
IC6005, 6101, 6103, 6104, 6105	VHiXR15218F-1 or VHiM5218AFP-1		AC AD
IC6102	VHiµPC4570G-1		AD
IC6106	VHiXRU4053F-1		AE
IC6107	VHiM62302FP-1		AN
IC6301	VHiBA7755//-1		AD
IC6303	VHiAN3963FB-1		AU
IC6304	VHiAN3317//-1		AH
IC6305	VHiµPP005RF11		AE

DIODES

Ref. No.	Part No.	Description	Code
D6001, 6004, 6005	98M-HSM2836C/	HSM2836C	AB
D6002, 6003	98M-HSM123///	HSM123	AB
D6006, 6007, 6101 | 6104, 6106, 6107, 6303 | 6306, 6309, 6310, 6311	98M-HSM2838C/	HSM2838C	AB
D6105, 6108	98M-RD2R0MB//	RD2.0MB	AB
D6307	98M-RD5R6MB3/	RD5.6MB3	AB
D6308	98M-RD10R0MB2	RD10.0MB2	AB

CONTROLS

Ref. No.	Part No.	Description	Code
R6306	98MVZ066HB504	500k(B) Bias Current Adj.	AC
R6349,	98MVZ066HB203	20k(B) E-E Gain Adj.	AB
6366		E-E Gain Adj.	

TRIMMING RESISTORS

Ref. No.	Part No.	Description	Code
R6367A,	98MCR18-511MT	510 ohm NTSC FM Carrier Adj.	AA
6370A,		NTSC FM Carrier Adj.	
6371A		PAL FM Carrier Adj.	
R6367B,	98MCR18-392MT	3.9k ohm NTSC FM Carrier Adj.	AA
6370B		NTSC FM Carrier Adj.	
R6368A	98MCR18-203MT	20k ohm PAL FM Carrier Adj.	AA
R6368B	98MCR18-302MT	3k ohm PAL FM Carrier Adj.	AA
R6371B	98MCR18-103MT	10k ohm PAL FM Carrier Adj.	AA

FILTERS, CRYSTALS, COILS AND TRANSFORMERS

Ref. No.	Part No.	Description	Code
L6001	98MEL45RA470K	47µH	AB
L6301	98MEL66RA221K	220µH	AB
L6302	98MEL66RA101K	100µH	AC
L6303	98MEL67RA682K	6.8mH	AB
FL6001, 6002, 6003	RFiLN0041GEZZ	Filter	AB
FL6101, 6102	RCiLF0240GEZZ	Filter	AE
FL6301	RCiLi0060GEZZ		AD
T6301	RTRNH0053GEZZ	Bias Osc.	AE
X6001	RCRSB0153GEZZ	Crystal	AG
X6002	RFiLC0073GEZZ		AD

CAPACITORS

Ref. No.	Part No.	Description	Code
C6010	98MECEA1AK221	220µF, 10V, Electrolytic	AB
C6011, 6017	98MECEA1AK101	100µF, 10V, Electrolytic	AB
C6145, 6146, 6148	98MECEA1CN100	10µF, 16V, Electrolytic (N.P.)	AB
C6328, 6343, 6360	98MECEA1AU101	100µF, 10V, Electrolytic	AB

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	98MB2B-PH-K-S	Plug, 2 pin (TP6301-6302)	AA
	98MiLS-4P-S2L	Plug, 4 pin (TP6303-6306)	AB
	98MJST12MQ-ST	Socket, 12 pin (BA, BB, BD)	AD
	98MJST08MQ-ST	Socket, 8 pin (BC, BE)	AC
	98MB6B-PH-K-S	Socket, 6 pin (BF)	AB
	98MB4B-PH-K-S	Socket, 4 pin (BG)	AB
	98MS11B-PH-K	Socket, 11 pin (BH)	AB
	98MB2B-PH-K-S	Socket, 2 pin (BI)	AA

TERMINAL CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3998TM52	Terminal Board Assembly (VC-H91, VC-H91ETS)	—
	DUNTK3998TM50	Terminal Board Assembly (VC-H96, VC-H96ETS)	—
	DUNTK3998TM54	Terminal Board Assembly (VC-H980)	—
	DUNTK3998TM55	Terminal Board Assembly (VC-H980ETS)	—

TRANSITTORS

Ref. No.	Part No.	Description	Code
Q5901,	VS2SA733APQ1E	2SA733APQ	AC
5905,			
5907,			
5909,			
5910,			
5916,			
5917			
Q5902,	VSUN2213///-1	UN2213	AA
5903,			
5904,			
5911,		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
5920			
Q5906	VSBC847B1F/-1	BC847B1F	AA
Q5908,	VSKRC104M//-1	KRC104M	AA
5918			
Q5912	VSUN2113///-1	UN2113 (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AA
Q5913,	VS2SD1306-E1E	2SD1306 (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AD
5914,		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
5915		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC5901	RH-iX0843GEZZ		AS
IC5902	VHiLVA519S2-1		AH
IC5903	VHiTC4S66F/-1		AD
IC5904	VHiPST529D2-1	(VC-H96, VC-H96ETS, VC-H980)	AD
IC5905	RH-iX0841GEZZ	(VC-H96, VC-H96ETS, VC-H980)	AS

DIODES AND CRYSTALS

Ref. No.	Part No.	Description	Code
D5901,	VHD1SS152//-1	1SS152	AB
5902			
D5903,	VHD1SS119//-1	1SS119	AB
5904,		(VC-H96, VC-H96ETS, VC-H980)	
5905,		(VC-H96, VC-H96ETS, VC-H980)	
5906,		(VC-H96, VC-H96ETS, VC-H980)	
5907			
X5901	RCRSB0085GEZZ	Crystal, 14MHz	AG
X5902	RCRSB0089GEZZ	Crystal, 17MHz	AG

CONTROL

Ref. No.	Part No.	Description	Code
R5912	RVR-M4626GEZZ	10k(B) AFC Adj.	AB

COILS AND FILTERS

Ref. No.	Part No.	Description	Code
FL5901	RFiLN0013GEZZ	Filter	AC
FL5902	RFiLC0115GEZZ	Filter, 4.0 MHz	AC
	or	(VC-H96, VC-H96ETS,	
	RFiLC0118GEZZ	VC-H980)	AC
L5901,	VP-XF220K0000	22μH	AB
5920			
L5902,	VP-XF101K0000	100μH	AB
5903			
|			
5905,			
5908			
L5906	VP-XF221K0000	220μH	AB
L5907	VP-XF120K0000	12μH	AB

TRIMMER

Ref. No.	Part No.	Description	Code
C5901	RTO-H1034GEZZ	Charactor Position Adj.	AD

CAPACITORS

Ref. No.	Part No.	Description	Code
C5907	VCEAEA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB
C5910,	VCEA2A0JW477M	470μF, 6.3V, 20%, Electrolytic	AB
5930			
C5912	RC-QZA561TAYJ	560pF, Mylar	AB
C5913	RC-QZA222TAYJ	0.0022μF, Mylar	AB
C5914	VCFYSA1HB223J	0.022μF, 50V, 5%, Mylar	AA
C5916	VCE9EA1HW105M	1μF, 50V, 20%, Electrolytic (N.P.)	AC

Ref. No.	Part No.	Description	Code
C5919	VCE9EA1CW476M	47µF, 16V, 20%, Electrolytic (N.P.)	AC
C5927	VCEAEA1CW107M	100µF, 16V, 20%, Electrolytic	AC
C5950	VCFYSA1HB473J	0.047µF, 50V, 5%, Mylar (VC-H96, VC-H96ETS, VC-H980)	AA

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGZ0352GEZZ	Plug, 3 pin (TP5901-5903)	AA
	QPLGZ1040GEZZ	Plug, 10 pin (JA, JB, JC, JD)	AD
	QSOCZ1241GEZZ	Socket, 12 pin (JE, JF)	AC
FB5901	RBLN-0043CEZZ	Ferrite Bead	AB
J6601	QJAKL0001GEZZ	Jack	AK
S5901,	QSW-S0244GEZZ	Switch, NTSC Select	AE
5903		Switch, RF Select	
S5902,	QSW-S0243GEZZ	Switch, (VC-H91, VC-H91ETS)	AD
5904		Switch, Audio Out Control (VC-H980, VC-H980ETS)	
5905		Switch, ATT	

TUNER / IF CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3997TM52	Tuner / IF Board Assembly (VC-H91, VC-H91ETS)	—
	DUNTK3997TM50	Tuner / IF Board Assembly (VC-H96, VC-H980)	—
	DUNTK3997TM57	Tuner / IF Board Assembly (VC-H96ETS)	—
	DUNTK3997TM55	Tuner / IF Board Assembly (VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q1501	VSUN2213///-1	UN2213	AA
1502,			
1503,			
1511,		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
1512		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
Q1504,	VSBC847B1F/-1	BC847B1F	AA
1507,			
1508,			
1509			
Q1510	VSUN2113///-1	UN2113	AA
Q1514	VS2SD1757KS-1	2SD1757KS	AC

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC1501	VHiTA7348P/-1		AK
IC1502	RH-iX0203GEZZ		AE
IC1503	VHiBA15218N-1	(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AD

DIODES

Ref. No.	Part No.	Description	Code
D1502,	VHD1SS119//-1	1SS119 (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AB
1503,		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	
1506,			
1507			

COILS

Ref. No.	Part No.	Description	Code
L1504,	VP-DF221K0000	220µH (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AB
1507			
L1505,	VP-DF220K0000	22µH	AB
1506,			
1509		(VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	

CAPACITORS

Ref. No.	Part No.	Description	Code
C1507	VCFYSA1HB334J	0.33µF, 50V, 5%, Mylar	AB
C1515	VCE9EA1CW226M	22µF, 16V, 20%, Electrolytic (N.P.)	AC
C1530	VCFYSA1HB153J	0.015µF, 50V, 5%, Mylar	AA
C1531	VCFYSA1HB103J	0.01µF, 50V, 5%, Mylar	AA

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	RiFU-0621GEZZ	IF-PACK	BE
	RCNVR0112GEZZ	RF-Converter	BD
	VTUOF4EO-725/	Tuner (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	BC
	VTUVTSS6S2Z//	Tuner (VC-H91, VC-H91ETS)	BA
FB1501,	RBLN-0043CEZZ	Ferrite Bead	AB
1502			
	QPLGN0978GEZZ	Plug, 9 pin (IC) (VC-H91, VC-H91ETS)	AC
	QPLGN1278GEZZ	Plug, 12 pin (IC) (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AC

Ref. No.	Part No.	Description	Code
	QPLGZ0842GEZZ	Plug, 8 pin (ID, IE, IF (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS))	AC
	QPLGZ1242GEZZ	Plug, 12 pin (IA, IB, IG (VC-H96, VC-H96ETS, VC-H980 VC-H980ETS))	AD

SIF/MPX CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3999TM50	SIF/MPX Board Assembly (VC-H96, VC-H96ETS, VC-H980)	—
	DUNTK3999TM52	SIF/MPX Board Assembly (VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q1601, 1602, 1604	VS2SC2735//1E	2SC2735	AC
Q1603, 1605	VS2SC2712Y/-1	2SC2712Y	AB
Q1606, 1607	VSBC847B1F/-1	BC847B1F	AA

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
IC1601	VHiTDA3857/-1		AR
IC1602	VHiTDA8415/-1	(VC-H980ETS)	AW

DIODE AND CRYSTAL

Ref. No.	Part No.	Description	Code
D1603	RH-EX0642GEZZ	Zener Diode	AA
X1601	RCRSB0129GEZZ	Crystal (VC-H980ETS)	AG

CONTROLS

Ref. No.	Part No.	Description	Code
R1632,	RVR-M4622GEZZ	2k(B) Audio Level Adj. (VC-H980ETS)	AB
1633		2k(B) Separation Adj. (VC-H980ETS)	

FILTER, COILS AND TRANSFORMER

Ref. No.	Part No.	Description	Code
L1601, 1602	VP-DF120K0000	12μH	AB
L1603	VP-XF1R8K0000	1.8μH	AB
L1604, 1605	VP-DF100K0000	10μH (VC-H980ETS)	AB
SF1601	RFiLC0125GEZZ	Filter	AP
T1601	RCiLD0057GEZZ	Detection Coil	AE
T1602, 1603	RCiLi0086GEZZ	(VC-H980ETS) (VC-H980ETS)	AE
FL1602	RFiLC0061CEZZ	(VC-H980ETS)	AF
FL1603	RFiLC0063CEZZ	(VC-H980ETS)	AG

CAPACITOR

Ref. No.	Part No.	Description	Code
C1621	VCEA2A1CW227M	220μF, 16V, 20%, Electrolytic (VC-H980ETS)	AB

RESISTOR

Ref. No.	Part No.	Description	Code
R1645	VRG-SC2EB220J	22 ohm, 1/4W, 5%, Fuse Resistor	AB

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QSOCZ0841GEZZ	Socket, 8 pin (FA, FB)	AC
	QPLGN0229TAZZ	Plug, 2 pin (TP1601-1602) (VC-H980ETS)	AB

NICAM CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK4000TM50	NICAM Board Assembly (VC-H96, VC-H96ETS)	—
	DUNTK4000TM51	NICAM Board Assembly (VC-H980)	—
	DUNTK4000TM52	NICAM Board Assembly (VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q1701, 1703, 1708	VSBC847B1F/-1	BC847B1F (VC-H96, VC-H96ETS)	AA
Q1702, 1704	VS2SC2735//1E	2SC2735 (VC-H96, VC-H96ETS)	AC

Ref. No.	Part No.	Description	Code
Q1705,	VSUN2112///-1	UN2112 (VC-H96, VC-H96ETS)	AA
1706,		(VC-H96, VC-H96ETS, VC-H980ETS)	
1707		(VC-H96, VC-H96ETS, VC-H980ETS)	
Q1709	VS2SC945APQ1E	2SC945APQ	AB

INTEGRATED CIRCUITS

IC1701	VHiTB1204F/-1		BK
IC1702	VHiTA2009F/-1		AH
IC1703,	VHiTC4W53F/-1	(VC-H96, VC-H96ETS)	AE
1704,		(VC-H96, VC-H96ETS)	
1705		(VC-H96, VC-H96ETS)	

DIODE AND CRYSTALS

D1701	VHD1SS119//-1	1SS119	AB
X1701	RCRSB0130GEZZ	Crystal (VC-H96, VC-H96ETS)	AK
X1702	RCRSB0132GEZZ	Crystal (Except VC-H980ETS)	AK
X1702	RCRSB0130GEZZ	Crystal (VC-H980ETS)	AK
X1703	RCRSB0131GEZZ	Crystal, 11.648MHz	AH

CONTROLS

R1723, 1724	RVR-M4386GEZZ	470k(B) (VC-H96, VC-H96ETS)	AB

COILS AND FILTERS

FL1701	RCiLV0095GEZZ	(VC-H980ETS)	AH
FL1701	RCiLV0165CEZZ	(Except VC-H980ETS)	AT
FL1702	RCiLV0096GEZZ	(VC-H96, VC-H96ETS)	AN
FL1703	RFiLN0013GEZZ		AC
L1701, 1704	VP-DF120K0000	12µH (VC-H96, VC-H96ETS)	AB
L1703, 1706	VP-XF680K0000	68µH (VC-H96, VC-H96ETS)	AB
L1707, 1708	VP-DF102J0000	1mH	AB

CAPACITORS

Ref. No.	Part No.	Description	Code
C1716, 1717	VCFYSA1HB473J	0.047µF, 50V, 5%, Mylar	AA
C1733, 1734	VCE9EA1CW106M	10µF, 16V, 20%, Electrolytic (N.P.)	AC
C1742, 1743	RC-QZA152TAYJ	1500pF, Mylar	AB
C1762	VCFYSA1HB184J	0.18µF, 50V, 5%, Mylar	AB

MISCELLANIOUS

	QPLGN0329TAZZ	Plug, 3 pin (TP1701-1703)	AB
	QSOCZ0841GEZZ	Socket, 8 pin (EA)	AC
	QSOCZ1241GEZZ	Socket, 12 pin (EB)	AC

SECAM CHROMA CIRCUIT

	DUNTK4007TM50	SECAM Chroma Board Assembly (VC-H91, VC-H91ETS)	—

TRANSISTORS

Q5301	VS2SC2001LK-1	2SC2001LK	AA
Q5302, 5311, 5313, 5314	VSBC847B1F/-1	BC847B1F	AA
Q5303	VS2SA733APQ1E	2SA733APQ	AC
Q5304, 5308	VSBA857B3F/-1	BA857B3F	AA
Q5307	VSUN2213///-1	UN2213	AA
Q5309, 5310	VS2SC945APQ1E	2SC945APQ	AB
Q5312	VS2SD655-DE1E	2SD655-DE	AC

INTEGRATED CIDRCUIT

IC5301	VHiBA7107S/-1		AS

DIODES

D5301	RH-EX0617GEZZ	Zener Diode	AA
D5302, 5303	VHD1SS119//-1	1SS119	AB

PACKAGED CIRCUITS

FL5301, 5302	RMPTD0257GEZZ		AD
FL5305	RMPTD0223GEZZ		AE

CONTROLS

Ref. No.	Part No.	Description	Code
R5310, 5311	RVR-M5446GEZZ	6.8k(B) Sync Gate Adj.-A Sync Gate Adj.-B	AB
R5348	RVR-B5442CEZZ	1.5k(B) REC-C Adj.	AB

COILS AND FILTERS

Ref. No.	Part No.	Description	Code
FL5303	RCiLV0078GEZZ		AD
FL5304	RCiLV0077GEZZ		AD
FL5306	RCiLV0079GEZZ		AD
L5301, 5308	VP-DF101K0000	100µH	AB
L5302	VP-DF391K0000	390µH	AC
L5303	VP-MK221K0000	220µH	AB
L5304	VP-XF390K0000	39µH	AB
L5305	VP-MK471K0000	470µH	AB
L5306	VP-XF560K0000	56µH	AB
L5307	VP-XF121K0000	120µH	AB
L5309	VP-MK271K0000	270µH	AB

CAPACITORS

Ref. No.	Part No.	Description	Code
C5311	RC-QZA682TAYJ	0.0068µF, Mylar	AB
C5312	RC-QZA471TAYJ	470pF, Mylar	AB

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGN1278GEZZ	Plug, 12 pin (SC)	AC
	QSOCZ0841GEZZ	Socket, 8 pin (SA, SB)	AC

TIMER CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0740GEZZ	Timer Board Assembly (VC-H91, VC-H91ETS)	—
	RUNTK0739GEZZ	Timer Board Assembly (VC-H96)	—
	RUNTK0758GEZZ	Timer Board Assembly (VC-H96ETS)	—
	RUNTK0745GEZZ	Timer Board Assembly (VC-H980)	—
	RUNTK0759GEZZ	Timer Board Assembly (VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q5001	VS2SA1561Q/1E	2SA1561Q	AC
Q5002	VSDTC124ELT-1	DTC124ELT	AA
Q5003	VSDTC144ELT-1	DTC144ELT (VC-H980, VC-H980ETS)	AB
Q5004	VSDTA144ELT-1	DTA144ELT	AB

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC5001	RH-iX0827GEZZ		AW
IC5002	VHiPST529i2-1		AD
IC5003	VHiCAT93C46-1		AN
IC5080	VHiCXA1261M-1		AE

DIODES AND CRYSTAL

Ref. No.	Part No.	Description	Code
D5001	RH-DX0053GEZZ		AA
|	or		
5005,	RH-DX0048GEZZ		AA
5007,	or		
5010,	VHD1SS119//-1	1SS119	AB
5011,			
5012,			
5016			
D5013	RH-EX0630GEZZ	MTZJ9.1B	AA
D5014	RH-PX0204GEZZ	Photodiode	AB
D5080	9CUH-PX0001KD	Photodiode	AD
X5001	RCRSB0090GEZZ	Crystal, 32.768kHz	AE

COIL AND FILTER

Ref. No.	Part No.	Description	Code
L5001	VP-DF220K0000	22µH	AB
FL5001	RFiLC0118GEZZ	Filter	AC

PACKAGED CIRCUIT

Ref. No.	Part No.	Description	Code
R5001	RMPTC0157GEZZ	47k ohm × 4	AA

CONTROL

Ref. No.	Part No.	Description	Code
R5018	RVR-B4262GEZZ	10k(B) Picture Tone	AD

CAPACITORS

Ref. No.	Part No.	Description	Code
C5006	RC-EZ0390GEZZ	0.047F, 6.3V, Electrolytic	AF
C5011	VCEAEA0JW227M	220µF, 6.3V, 20%, Electrolytic	AC

RESISTOR

Ref. No.	Part No.	Description	Code
R5082	VRN-RA2BK224F	220k ohm, 1/8W, 1%, Carbon	AA

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
DG5001	VVKBJ077GK/-1	Fluorescent Display Tube	AW
	9CUPLGZ0302KD	Plug, 3 pin (TJ)	AA
	9CUSOCN2801KD	Socket, 28 pin (TA)	AC
	9CUSOCN1501KD	Socket, 15 pin (TB)	AB
S5001,	QSW-K0079GEZZ	Switch, Next	AB
5002,		Switch, Channel Set	
5005,		Switch, Rewind	
5006,		Switch, Playback	
5007,		Switch, Fast Forward	
5008,		Switch, Stop	
5009,		Switch, Pause	
5010,		Switch, Recording	
5011,		Switch, Channel Up	
5012,		Switch, Channel Down	
5013,		Switch, Store	
5015,		Switch, Power	
5016,		Switch, Eject	
5017,		Switch, Timer	
5018,		Switch, Menu	
5020,		Switch, Clear	
5021		Switch, All Clear	
S5022,	QSW-S0245GEZZ	Switch, VCR/Bass/ Normal/Low (VC-H980, VC-H980ETS)	AF
5023		Switch, Auto/PAL/ NTSC/SECAM	
S5024	QSW-S0244GEZZ	Switch, Edit/Normal/AI	AE

RELAY CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK4001TM52	Relay Board Assembly (VC-H91, VC-H91ETS)	—
	DUNTK4001TM50	Relay Board Assembly (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q1451	VS2SC945APQ1E	2SC945APQ	AB
Q8501	VS2SC2001LK-1	2SC2001LK	AA

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
IC1451	VHiUPC574JT-1		AC

DIODES

Ref. No.	Part No.	Description	Code
D8501	RH-DX0053GEZZ	1SS132	AA
D9001	RH-EX0281CEZZ	HZS7.5EB1	AA

COIL

Ref. No.	Part No.	Description	Code
L1451	VP-XF120K0000	12µH	AB

CAPACITORS

Ref. No.	Part No.	Description	Code
C1451, 1452	VCFYSA1HB334J	0.33µF, 50V, 5%, Mylar	AB
C8501	VCEAGA1EW227M	220µF, 25V, 20%, Electrolytic	AC

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGN0978GEZZ	Plug, 9 pin (RE) (VC-H91, VC-H91ETS)	AC
	QPLGN1178GEZZ	Plug, 11 pin (RB)	AC
	QPLGN1278GEZZ	Plug, 12 pin (RE) (VC-H96, VC-H96ETS, VC-H980, VC-H980ETS)	AC
	QSOCN0595GEZZ	Socket, 5 pin (RH)	AB
	QSOCN1571REZZ	Socket, 15 pin (RI)	AC
	QSOCN1595GEZZ	Socket, 15 pin (RC, RG)	AC
	QSOCN2295GEZZ	Socket, 22 pin (RD, RF)	AD
	QSOCN2871REZZ	Socket, 28 pin (RA)	AD

POWER CIRCUIT

Ref. No.	Part No.	Description	Code
	RDENC0522GEZZ	Power Board Assembly	—

TRANSISTOR

Ref. No.	Part No.	Description	Code
⚠Q901	95KUAD0046AZ	2SD882	AH

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
⚠IC901	95KUCC0042AZ		AR

DIODES

Ref. No.	Part No.	Description	Code
⚠D901 | ⚠ 904	95KUBC0213FK	RL156	AC

Ref. No.	Part No.	Description	Code
⚠D905	95KUBC0214BK	R1200F	AC
⚠D906,	95KUBC0178AB	D1NL20	AD
⚠ 907	or		
	95KUBC0221AK	ERA18	AC
	or		
	95KUBC0169EZ	ERA22	AD
⚠D908	95KUBA0005KZ	1SS55	AB
⚠D909	95KUBC0143AK	EU1Z	AC
⚠D910	95KUBC0250AK	5ELS2	AC
⚠D911	95KUBC0247BK	1JU42	AC
⚠D912,	95KUBC0171BC	30DF2	AF
⚠ 913			
⚠D914	95KUBC0182CK	10ELS4	AC
⚠D915	95KUBDAK180C	RD18ESAB	AB
⚠D916	95KUDA0064AK	RSF05G1	AD
⚠D917	95KUBC0017BK	10DF2	AD

CONTROL

Ref. No.	Part No.	Description	Code
⚠R916	95KUFBA202CD	2k ohm, UR6.5V Adj.	AC

COILS AND TRANSFORMER

Ref. No.	Part No.	Description	Code
⚠L901	95KUKZ0306ZZ	ELF-18D290C, Line Filter	AK
L902	95KUKZ0256ZZ	100µH, Inductance Coil	AC
L903	95KUKZ0316ZZ	62µH, Filter	AE
L904	95KUKZ0416ZB	68µH, Inductance Coil	AE
L905	95KUKZ0315ZZ	33µH, Filter	AD
⚠L906	95KUKZ0469ZK	100µH, Inductance Coil	AE
⚠ 907			
⚠T901	95K129035052	PTTP59, Pulse Transformer	AX

CAPACITORS

Ref. No.	Part No.	Description	Code
⚠C901	95KUGZ0687ZZ	0.1µF, Film	AB
	or		
	95KUGFZ104FE		AE
⚠C902	95KUGZ0662ZZ	0.047µF, Film	AE
	or		
	95KUGFZ473FE		AE
⚠C903	95KUGCZ102BP	1000pF, 4kV, Ceramic	AD
⚠C904,	95KUGCZ471BT	470pF, 4kV, Ceramic	AC
⚠ 905			
⚠C907	95KUGCU101AJ	100pF, 1kV, Ceramic	AC
	or		
	95KUGCU101BH		AB
⚠C908	95KUGBQ680BT	68µF, 400V, Electrolytic	AP
⚠C909	95KUGAJ100JS	10µF, 100V, Electrolytic	AC
⚠C910	95KUGAQ010LM	1µF, 400V, Electrolytic	AD
⚠C911	95KUGZ0779ZZ	47pF, 1kV, Ceramic	AC
	or		
	95KUGCU470BG		AB
⚠C912	95KUGAB220HV	22µF, 10V, Electrolytic	AE
⚠C913	95KUGFJ222EL	2200pF, 100V, Film	AB
⚠C914	95KUGFF333BQ	0.033µF	AB
⚠C915	95KUGAC101FD	100µF, 16V, Electrolytic	AC
⚠C916	95KUGAC100HV	10µF, 16V, Electrolytic	AF
⚠C917	95KUGCS471AA	470pF, 500V, Ceramic	AB
⚠C918,	95KUGCS221AA	220pF, 500V, Ceramic	AB
⚠ 929			
C922	95KUGAB101FD	100µF, 10V, Electrolytic	AB
	or		
	95KUGAB101HN		AB
C923,	95KUGAC271NU	270µF, 16V, Electrolytic	AD
924	or		
	95KUGAC271NV		AD
C926,	95KUGAB391NU	390µF, 10V, Electrolytic	AD
927	or		
	95KUGAB391NV		AD
C931	95KUGAD221NV	220µF, 25V, Electrolytic	AE
	or		
	95KUGAD221NJ		AD

RESISTORS

Ref. No.	Part No.	Description	Code
⚠R901,	95KUEZ0437ZK	6.8M ohm, 1/2W, Solid	AB
⚠ 902			
⚠R903	95KUEFG5R6AA	5.6 ohm, 5W, Metal Film	AD
⚠R904	95KUEBBR39AM	0.39 ohm, Fuse Resistor	AC
⚠R905	95KUEFCR39AW	0.39 ohm, 1/2W, Metal Film	AA
⚠R906	95KUEEC273AT	27k ohm, 1/2W, Carbon	AA
|			
⚠ 910			
⚠R911	95KUEEC683AT	68k ohm, 1/2W, Carbon	AA
|	or		
⚠ 914	95KUEEC683AM		AA
⚠R915	95KUEEB151BF	150 ohm, Carbon	AA
	or		
	95KUEEB151BE		
⚠R917	95KUEEC180AT	18 ohm, 1/2W, Carbon	AA
⚠R918	95KUEEB103BF	10k ohm, Carbon	AA
⚠R919	95KUEBB8R2AV	8.2 ohm, 1/6W, Fuse Resistor	AC

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
⚠F901	95KPJCTB2001	Fuse, T2A, 250V	AD
	or		
	95KPJCAY2001		AD
⚠F902	95KPJCBB1001	Fuse, 1A, 125V	AE
⚠F903,	95KPJCBB2001	Fuse, 2A, 125V	AG
⚠ 904			
	95KPZZ0625ZZ	Fuse Holder	AB
⚠	95KPCZ0115ZZ	Plug (for AC Cord)	AE
	95KPKZ0451ZZ	Plug, 11 pin (PA)	AD

HEAD AMP CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3721XM52	Head Amp Board Assembly	—

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
IC301	VHiBA7279S/-1		AL

COILS

Ref. No.	Part No.	Description	Code
L301, 307	VP-MK101K0000	100μH	AB
L399	VP-OF1R5M0000	1.5μH	AC

CAPACITORS

Ref. No.	Part No.	Description	Code
C307, 310	VCFYSA1HB473J	0.047μF, 50V, 5%, Mylar	AA
C313 314, 317, 318	RC-KZ0018GEZZ	0.1μF, Ceramic	AA
C326	VCFYSA1HB333J	0.033μF, 50V, 5%, Mylar	AE
	or		
	VCFYSA1JA333J	0.033μF, 63V, 5%, Mylar	AB

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGN0229TAZZ	Plug, 2pin (TP301-302)	AB
	QPLGN0480GEZZ	Plug, 4 pin (XC)	AB
	QSOCN1232REZZ	Socket, 12 pin (XA)	AD
	QSOCN1271REZZ	Socket, 12 pin (XB)	AC

LED CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0741GEZZ	LED Board Assembly (VC-H91, VC-H91ETS)	—
	RUNTK0735GEZZ	LED Board Assembly (VC-H96, VC-H96ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q8101, 8102	VS2SC4038R/1E	2SC4038R	AB
Q8103	VSDTC144ELT-1	DTC144ELT	AB

DIODES

Ref. No.	Part No.	Description	Code
D8101 | 8106, 8107	RH-PX0207GEZZ	Photodiode (VC-H91, VC-H91ETS)	AB
D8108 | 8109, 8112	RH-DX0053GEZZ	1SS132	AA
	or		
	VHD1SS119//-1	1SS119 (VC-H91, VC-H91ETS)	AB

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGN0878GEZZ	Plug, 8 pin (HA)	AC

MIC AMP CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0746GEZZ	MIC AMP Board Assembly (VC-H980, VC-H980ETS)	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q6801, 6803, 6804, 6805, 6806	VSDTC124EK/-1	DTC124EK	AB
Q6802	VSDTA124EK/-1	DTA124EK	AB

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
IC6801	VHiUPC4570HA1		AE

DIODES

Ref. No.	Part No.	Description	Code
D6801, 6802	RH-DX0053GEZZ	1SS132	AA

CONTROL

Ref. No.	Part No.	Description	Code
R6818	RVR-B4370GEZZ		AG

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	QPLGN1120REZZ	Plug, 11 pin (HB)	AB
	QPLGZ0725GEZZ	Plug, 7 pin (HC)	AC
S6801,	QSW-K0079GEZZ	Switch, Key (−)	AB
6802,		Switch, Key (+)	
6803		Switch, Mode	

MIC JACK CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0731GEZZ	MIC JACK Board Assembly (VC-H980, VC-H980ETS)	—

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
J6601	QJAKE0203GEZZ		AF
J6602, 6603	QJAKE0200GEZZ		AF

INFRARED REMOTE CONTROL CIRCUIT

Ref. No.	Part No.	Description	Code
	RRMCG0910GESA	Infrared Remote Control Unit (VC-H91, VC-H91ETS)	BD
	RRMCG0909GESA	Infrared Remote Control Unit (VC-H96, VC-H96ETS)	BD
	RRMCG0945GESA	Infrared Remote Control Unit (VC-H980)	BD
	RRMCG0955GESA	Infrared Remote Control Unit (VC-H980ETS)	BK

TRANSISTOR

Ref. No.	Part No.	Description	Code
Q1	92P3TSN0005T	2SC2411K	AD

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
IC1	92P3SQ00562		AX

DIODES AND FILTER

Ref. No.	Part No.	Description	Code
D1 | 4	92P3TSD0007T	DAN202K	AC
LED1	92P3QH00019	SLR932A-1-A	AE
LED2	92P3SL00043	SLP-144B-51	AD
X1	92P3TEF0002T	Ceramic Filter, 455kHz	AG

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	92PSSSS21B596	SW2 (VC-H96, VC-H96ETS, VC-H980)	AE

CABINET PARTS

Ref. No.	Part No.	Description	Code
1	92PFA11H0907	Cabinet-A	AS
2	92PFA11H1003	Cabinet-B	AP
3	92PFA11H1103	Cabinet-C	AG
4	92PFA58B4601	Infrared Filter	AF
5	92PFA61C5203	Knob	AH
6	92PFA61C5303	Knob (VC-H96, VC-H96ETS, VC-H980)	AF
7	92PFA42C6412	Contact Rubber	AW
8	92PFA62D1119	Indication Plate A (VC-H91, VC-H91ETS)	AS
8	92PFA62D1118	Indication Plate A (VC-H96, VC-H96ETS)	AR
8	92PFA62D1120	Indication Plate A (VC-H980)	AS
8	92PFA62D1122	Indication Plate A (VC-H980ETS)	AR
9	92PFA62D1202	Indication Plate B	AK
10	———	PWB	—
11	92PSRGPJJ008A	Switch	AR
12	92P3ETFD0301	Terminal	AD
13	92P2A391050	Screw	AA
14	92P2A401080	Screw	AA
15	92P2A461080	Screw	AA

THE OTHER PARTS

Ref. No.	Part No.	Description	Code
⚠	QACCZ3011GEZZ	AC Cord (VC-H91, VC-H96, VC-H980)	AL
⚠	QACCV2033GEZZ	AC Cord (VC-H91ETS, VC-H96ETS, VC-H980ETS)	AN
	QCNW-5650GEZZ	75 ohm Coaxial Cable	AK
	QPLGA0011CEZZ	AC Plug, Adapter (VC-H91, VC-H96, VC-H980)	AF
	TiNS-2031GEZZ	Operation Manual (VC-H91, VC-H91ETS)	AS
	TiNS-2004GEZZ	Operation Manual (VC-H96, VC-H96ETS)	AS
	TiNS-2056GEZZ	Operation Manual (VC-H980)	AS
	TiNS-2065GEZZ	Operation Manual (VC-H980ETS)	AY
	UBATU0023GEZZ	Battery	AD

MECHANISM CHASSIS PARTS

Ref. No.	Part No.	Description	Code
1	PGiDS0023GEFW	Retaining Guide	AE
2	MSPRC0142GEFJ	Retaining Guide Spring	AA
3	MLEVC0022GEZZ	Half-Loading Lever	AF
4	MSPRT0270GEFJ	Half-Loading Lever Spring	AA
5	MLEVF0284GEFW	Half-Loading Drive Lever	AC
6	MSPRT0269GEFJ	Half-Loading Reciprocating Spring	AA
7	MLEVF0283GEZZ	Half-Loading Reciprocating Lever	AB
8	MSPRC0144GEFJ	Azimuth Spring	AA
9	RHEDU0070GEZZ	Audio/Control Head Ass'y	AS
10	PCAPS1015GEZZ	Retaining Guide Cap	AA
11	QPWBF3777GEZZ	Audio/Control Head PWB	AB
12	MLEVF0292GEZZ	Audio/Control Head Arm	AD
13	MSPRD0087GEFJ	Audio/Control Head Arm Spring	AA
14	LHLDZ1606GEZZ	Loading Block Holder Ass'y	AC
15	QPRBF3817GEZZ	Loading Block PWB	AD
16	RMOTM1049GEZZ	Loading Motor	AM
17	QPLGN0580GEZZ	Plug, 5 pin (MG)	AB
18	QSW-R0026GEZZ	Cam Switch	AE
19	NGERW1032GEZZ	Worm Wheel	AC
20	NPLYV0133GEZZ	Loading Motor Pulley	AC
21	NBLTK0058GE00	Loading Belt	AA
22	NGERW1031GEZZ	Worm Ass'y	AC
23	NSFTG0045GEFJ	Worm Shaft	AB
24	NGERH1129GEZZ	Master Cam	AC
25	MLEVF0281GEZZ	Pinch Roller Lever Ass'y	AN
26	MLEVF0348GEZZ	Relay Shifter Lever	AD
27	MLEVC0033GEZZ	Reverse Guide	AG
28	MSPRD0086GEFJ	Reverse Guide Spring	AA
29	RMOTN2038GEZZ	Capstan D.D. Motor	AZ
30	MLEVP0136GEZZ	Slow Brake Lever	AA
31	MSPRT0329GEFJ	Slow Brake Spring	AA
32	MSPRC0151GEFJ	Reverse Guide Spring	AA
33	MLEVF0350GEZZ	Relay Gear Drive Lever	AF
34	MSLiF0043GEZZ	Brake Shifter	AK
35	NSFTZ0068GEFD	Brake Lock Shaft	AC
36	MSPRC0143GEFJ	Absorber Plate Spring	AB
37	MSPRT0274GEFJ	Video Search Spring	AB
38	MLEVP0181GEZZ	Video Search Brake Lever	AA
39	MLEVP0131GEZZ	Video Search Reciprocating Lever	AC
40	RPLU-0083GEZZ	Brake Solenoid Ass'y	AF
41	NDAiV1046GEZZ	Take-Up Reel Disk Ass'y	AG
42	NGERH1128GEZZ	Idler Gear Ass'y	AN
43	NPLYV0134GEZZ	Reel Pulley	AC
44	MSPRD0085GEFJ	Shifter Spring	AB
45	PCOVP1018GEZZ	Shifter Spring Cover	AC
46	LHLDP1092GEZZ	Cassette LED Holder	AE
47	RH-PX0180GEZZ	Cassette LED	AD
48	QPWBF2977GEZZ	Reel Sensor PWB	AK
49	RH-PX0181GEZZ	Reel Sensor	AE
50	LCHSS0016GEZZ	Reel Block Chassis	AL
51	MLEVP0134GEZZ	Tension Adjusting Lever	AC
52	MLEVP0195GEZZ	Tension Release Lever	AC
53	MLEVP0132GEZZ	Back Tension Lever	AC
54	MSPRT0273GEFJ	Back Tension Lever Spring	AB
55	NDAiV1047GEZZ	Supply Reel Disk Ass'y	AH
56	MSPRT0272GEFJ	Main Brake Spring	AC
57	MLEVP0135GEZZ	Intermediate Lever	AC
58	MLEVP0129GEZZ	Main Take-Up Brake Lever	AE
59	MLEVP0128GEZZ	Main Supply Brake Lever	AE
60	NGERH1121GEZZ	Loading Relay Gear	AA
61	MSPRT0271GEFJ	Loading Reciprocating Spring	AA
62	NGERH1120GEZZ	Take-Up Loading Gear	AA
63	MLEVF0304GEZZ	Take-Up Loading Arm Ass'y	AC
64	NGERH1119GEZZ	Supply Loading Gear	AA
65	MLEVF0303GEZZ	Supply Loading Arm Ass'y	AC
66	LCHSM0123GEZZ	Main Chassis Ass'y	AT
67	LBNDK1002GEZZ	Tension Band Ass'y	AD
68	LHLDZ1607GEZZ	Tension Spring Hook Plate	AA
69	MSPRT0275GEFJ	Tension Spring	AA
70	MLEVF0291GEZZ	Tension Arm Ass'y	AF
72	MSLiF0049GEFW	Take-Up Pole Base Slider	AB
73	LPOLM0037GEZZ	Take-Up Pole Base Ass'y	AG
74	NROLP0062GEZZ	Guide Roller Ass'y	AE
75	MSLiF0048GEFW	Supply Pole Base Slider	AB
76	LPOLM0036GEZZ	Supply Pole Base Ass'y	AG
77	PGiDM0066GEZZ	Take-Up Loading Rail	AB
78	PGiDM0067GEZZ	Supply Loading Rail	AB
79	NSFTL0563GEFW	Supply Impedance Roller Innor	AC
80	PGiDH0031GEFW	Supply Impedance Roller Flange	AA
81	NROLP0084GEZZ	Supply Impedance Roller	AC
82	RHEDT0026GEZZ	Full Erase Head Ass'y	AK
83	QPWBF2936GEZZ	Full Erase Head PWB	AA
84	LANGA0054GEZZ	Supply Reel Retainer Ass'y	AD
85	NBLTK0059GE00	Reel Belt	AB
86	MLEVP0146GEZZ	Auxiliary Fast-Forward Brake Lever	AE
87	MSPRT0282GEFJ	Auxiliary Fast-Forward Brake Spring	AB
90	PGiDC0044GEFW	Drum Base	AK
91	DDRMW0008HE31	Upper and Lower Drum Ass'y	BW
92	QBRSK0025GEZZ	Earth Brush Ass'y	AD
93	RMOTP1107GEZZ	Drum D.D. Motor Ass'y	AW
97	QCNW-7077GEZZ	Full Flat Cable (Capstan D.D. Motor)	AF
98	QCNW-6674GEZZ	Full Flat Cable (Drum D.D. Motor)	AD
99	RDTCH0018GEZZ	Dew Sensor	AG
100	QSOCN0534REZZ	Socket, 5 pin (MF)	AC
101	VRS-TW2ED221J	220 ohm, 1/4W, 5%, Metal Oxide	AA

Ref. No.	Part No.	Description	Code
102	VCKYTV1HB102K	0.001µF, 50V, 10%, Ceramic	AA
103	VRS-TV1JD473J	47k ohm, 1/16W, 5%, Metal Oxide	AA
105	LANGA0051GEFW	Take-Up Reel Disk Catch Holder	AB
106	PGiDS0027GEZZ	Supply Impedance Roller Flange L	AA
111	LANGF7061GEZZ	Release Pin Angle Ass'y	AC
120	CCHSS0018GE02	Reel Block Ass'y	AZ
124	LHLDW3009GEZZ	Wire Holder	AA
125	QPLGN0378GEZZ	Plug, 3 pin (MR)	AB
126	QPLGN0578GEZZ	Plug, 5 pin (MH)	AB
127	QCNW-7082GEZZ	Full Erase Head Lead	AE
128	CLEVP0208GE00	AHC Drive Lever Ass'y	AD
129	CLEVP0209GE00	AHC Roller Ass'y	AG
130	RC-KZ0019GEZZ	Capacitor	AA
135	94SSEE0193721A	Drum IC	AU
136	94SSEE0193731A	Capstan IC	AU
137	LHLDW1033CE00	Wire Holder	AA

CASSETTE HOUSING CONTROL PARTS

Ref. No.	Part No.	Description	Code
	CHLDX3066GE51	Cassette Housing Control Assembly	AY
301	PGiDM0069GE00	Down Guide	AC
302	QSW-F0034GEZZ	Cassette Erase Protection Switch	AC
303	LHLDX1014GE00	Cassette Housing Frame (Right)	AC
304	MARMP0043GE00	Cassette Cover Arm (A)	AA
305	MARMP0044GE00	Cassette Cover Arm (B)	AA
306	NGERW1036GEZZ	Phase Gear	AA
307	MSPRT0290GEFJ	Cassette Cover Arm Reciprocating Spring	AA
308	MSPRD0088GEFJ	Drive Gear Spring (Right)	AA
309	NGERW1034GEZZ	Drive Gear (Right)	AB
310	MSPRT0277GEFJ	Reciprocating Spring	AA
311	NGERW1033GEZZ	Worm Wheel Gear	AB
312	LANGF9355GEFW	Worm Bracket	AB
313	NBRGP0013GEZZ	Bearing	AA
314	MLEVP0142GE00	Open Lever	AA
315	MSPRD0091GEFJ	Open Lever Spring	AA
316	MLEVP0192GEZZ	Switching Lever	AB
317	MSPRT0280GEFJ	Switching Lever Spring	AA
318	NSFTD0016GEFD	Worm Shaft Ass'y	AE
319	MLEVP0140GEZZ	Clutch Lock Lever	AA
320	MSPRT0279GEFJ	Clutch Lock Lever Spring	AA
321	MLEVP0139GEZZ	Clutch Release Lever	AA
322	MSPRD0092GEFJ	Clutch Release Lever Spring	AA
323	MLEVP0138GEZZ	Clutch Lever	AA
324	NPLYV0135GEZZ	Pulley	AA
325	NBLTK0060GE00	Cassette Loading Belt	AB
326	LANGF9354GEFW	Upper Plate	AD
327	LHLDX1011GE00	Slider Holder (Left)	AB
328	MSPRP0135GEFJ	Cassette Spring	AB
329	LANGF9357GEFW	Slider Lock (Left)	AA
330	MSPRT0281GEFJ	Slider Lock Spring	AA
331	MSLiF0044GEFW	Slider	AF
332	MLEVP0137GE00	Lock Release Lever	AA
333	MSPRD0093GEFJ	Lock Release Lever Spring	AA
334	MLEVP0143GE00	Slider Lock Cover	AA
335	LANGF9356GEFW	Slider Lock (Right)	AA
336	LHLDX1010GE00	Slider Holder (Right)	AB
337	NGERW1035GEZZ	Drive Gear (Left)	AB
338	MSPRD0089GEFJ	Drive Gear Spring (Left)	AA
339	LHLDX1015GE00	Cassette Housing Frame (Left)	AC
340	NSFTD0015GEFD	Main Shaft	AD
341	QPWBF2894GEZZ	End Sensor PWB	AB
342	RH-PX0176GEZZ	Phototransistor	AE
343	QPWBF3975GEZZ	Start Sensor PWB	AC
344	QSW-F0040GEZZ	Cassette Switch	AD
345	ZTAPEZ790008E	Rubber Mat	AB
347	QSOCN0595GEZZ	Socket, 5 pin	AB
349	VS2SA937-Q/-1	Transistor	AC
350	VRD-SA2BB153J	15k ohm, 1/8W, 5%, Carbon	AA
351	VRD-SA2BB223J	22k ohm, 1/8W, 5%, Carbon	AA
354	VRD-SA2BB563J	56k ohm, 1/8W, 5%, Carbon	AA
355	RC-KZ0028GEZZ	0.047µF, 16V, 20%, Ceramic	AA
356	QCNW-4789GEZZ	Connecting Cord	AF
401	LX-WZ1020GE00	Cut Washer (4.2W-6.0-0.5)	AA
402	LX-HZ3046GEFD	Screw (B Tight BTN3P + 6S)	AA
403	NPLYV0137GEZZ	Coupling	AA
404	NPLYV0136GEZZ	Clutch	AA
405	NGERW1037GEZZ	Worm	AA
406	PSPAZ0301GEZZ	Spacer	AD

SCREWS, NUTS, AND WASHERS

Ref. No.	Part No.	Description	Code
201	XNFSD20-16000	Adjusting Nut	AA
202	XWHSD26-05060	Washer W2.6S-6-0.5	AA
203	XRESJ20-04000	E Ring-2	AA
204	LX-BZ3095GEFD	AC Head Screw	AA
205	XBPSD26P06000	Azimuth Adjusting Screw	AA
206	LX-BZ3096GEFD	Tilt Adjusting Screw	AA
207	XNFSD40-31000	Adjusting Nut (A/C Head)	AB
208	LX-WZ1048GEZZ	Washer W3.1-5.4-0.5	AA
209	LX-WZ1041GE00	Washer W2.6-6-0.5 (LM)	AA
210	XHPSD26P06WS0	Screw C2.6P + 6S	AA
211	XRESJ30-06000	E Ring-3	AA

Ref. No.	Part No.	Description	Code
212	XWHJZ45-02060	Washer PSW4.6-6-0.25	AA
213	LX-NZ3046GEFW	Adjusting Nut	AB
215	LX-WZ1003GE00	Washer CW2.1-5-0.5	AA
216	XRESJ12-03000	E Ring-1.2-T0.3	AA
217	XHPSD26P03000	Screw S2.6P + 3S (S Tight)	AA
218	XHPSD20P03000	Screw S2P + 3S (S Tight)	AA
219	XRESJ25-04000	E Ring-2.5	AA
220	XWHJZ25-05050	Washer W2.6P-5-0.5	AA
221	XWHJZ25-01050	Washer W2.6P-5-0.13	AA
222	XWHJZ25-02050	Washer W2.6P-5-0.25	AA
223	LX-HZ3043GEZZ	Screw W2.6P + 6S	AA
224	LX-BZ3099GEZZ	Screw WSW2P + 11S (W5)	AB
225	LX-XZ3030GEFD	Screw M2x4	AC
226	XHPSD26P08WS0	Screw C2.6P + 8S	AA
227	XJPSD26P08WS0	B Tight Screw C2.6 + 8S	AA
228	XHPSD30P08WS0	Screw C3P + 8S	AA
229	LX-WZ1040GE00	Washer CW2.5-6-0.5	AA
230	XJBSD20P06000	B Tight Screw 2P + 6S	AA
232	LX-HZ3056GEFD	Screw WSW3P + 10S-6W	AA
233	LX-BZ3064GEFN	Screw SW3P + 6S-Ni	AA
234	XBPSD26P12J00	Screw SW2.6 + 12S	AA
235	XBPSD30P05J00	Screw SW3P + 5S	AA
237	XHPSD30P06000	Screw S3P + 6S	AA
238	LX-RZ3001AEZZ	E Ring-3 (Curl)	AA
239	LX-WZ1042GE00	Washer CW2.7-7-0.5	AA
242	XWHJZ25-04050	Washer W2.6P-5-0.4	AA
244	XHPSD30P04WS0	Screw C3P + 4S	AA

MECHANICAL PARTS

Ref. No.	Part No.	Description	Code
601	GCABB1118GEZZ	Main Frame	AT
602	CCABA3072GE04	Upper Cabinet Ass'y (VC-H91, VC-H91ETS)	AS
602-1	GCABA3072GESJ	Upper Cabinet (VC-H91, VC-H91ETS)	AR
602-2	TCADZ3065GEZZ	Caution Label (VC-H91, VC-H91ETS)	AC
602	GCABA3072GESJ	Upper Cabinet (Except VC-H91, VC-H91ETS)	AR
603	GBDYU3075GEZZ	Bottom Plate	AH
604	GCOVA1740GEZZ	Antenna Terminal Cover (VC-H91, VC-H91ETS)	AF
604	GCOVA1736GEZZ	Antenna Terminal Cover (VC-H96, VC-H96ETS)	AF
604	GCOVA1738GEZZ	Antenna Terminal Cover (VC-H980, VC-H980ETS)	AF
605	LHLDP1089GE00	LED Holder	AA
606	LHLDZ1780GEZZ	Holder, Power	AC
607	LHLDZ1804GEZZ	Holder, Fluorescent Display Tube	AD
608	LHLDZ1779GEZZ	Holder, RF Converter	AC
609	MHNG-1060GEZZ	Hinge, Main PWB	AA
610	QEARP0360GEFW	Earth Plate	AB
611	TLABM2459GEZZ	Label, Model (VC-H91)	AB
611	TLABM2503GEZZ	Label, Model (VC-H91ETS)	AC
611	TLABM2458GEZZ	Label, Model (VC-H96)	AB
611	TLABM2502GEZZ	Label, Model (VC-H96ETS)	AC
611	TLABM2526GEZZ	Label, Model (VC-H980)	AB
611	TLABM2527GEZZ	Label, Model (VC-H980ETS)	AC
612	LX-HZ3040GEFF	Screw	AA
613	LX-HZ3047GEFF	Screw	AA
614	XEBSD40P12000	Screw	AA
615	XESSF30P12000	Screw	AA
616	XHPS330P06WS0	Screw	AA
617	XEBSD30P12000	Screw	AA
618	LANGF9367GEFW	Fixing Metal	AB
619	LANGF5060GEFW	Angle	AB
620	LX-HZ3056GEFD	Screw	AA
621	PSPAZ0317GEZZ	Spacer	AA
622	LHLDZ1806GEZZ	Holder (Except VC-H980, VC-H980ETS)	AB
622	LHLDZ1843GEZZ	Holder (VC-H980, VC-H980ETS)	AB
623	LHLDZ1844GEZZ	Holder, LED PWB (Except VC-H980, VC-H980ETS)	AD
624	LHLDP1128GEZZ	Holder, LED (Except VC-H980, VC-H980ETS)	AC
625	LHLDZ1845GEZZ	Mic Amp PWB Holder (VC-H980, VC-H980ETS)	AD
626	LHLDZ1864GEZZ	Mic Jack PWB Holder (VC-H980, VC-H980ETS)	AC
627	LHLDZ1778GEZZ	Holder, Main PWB	AB

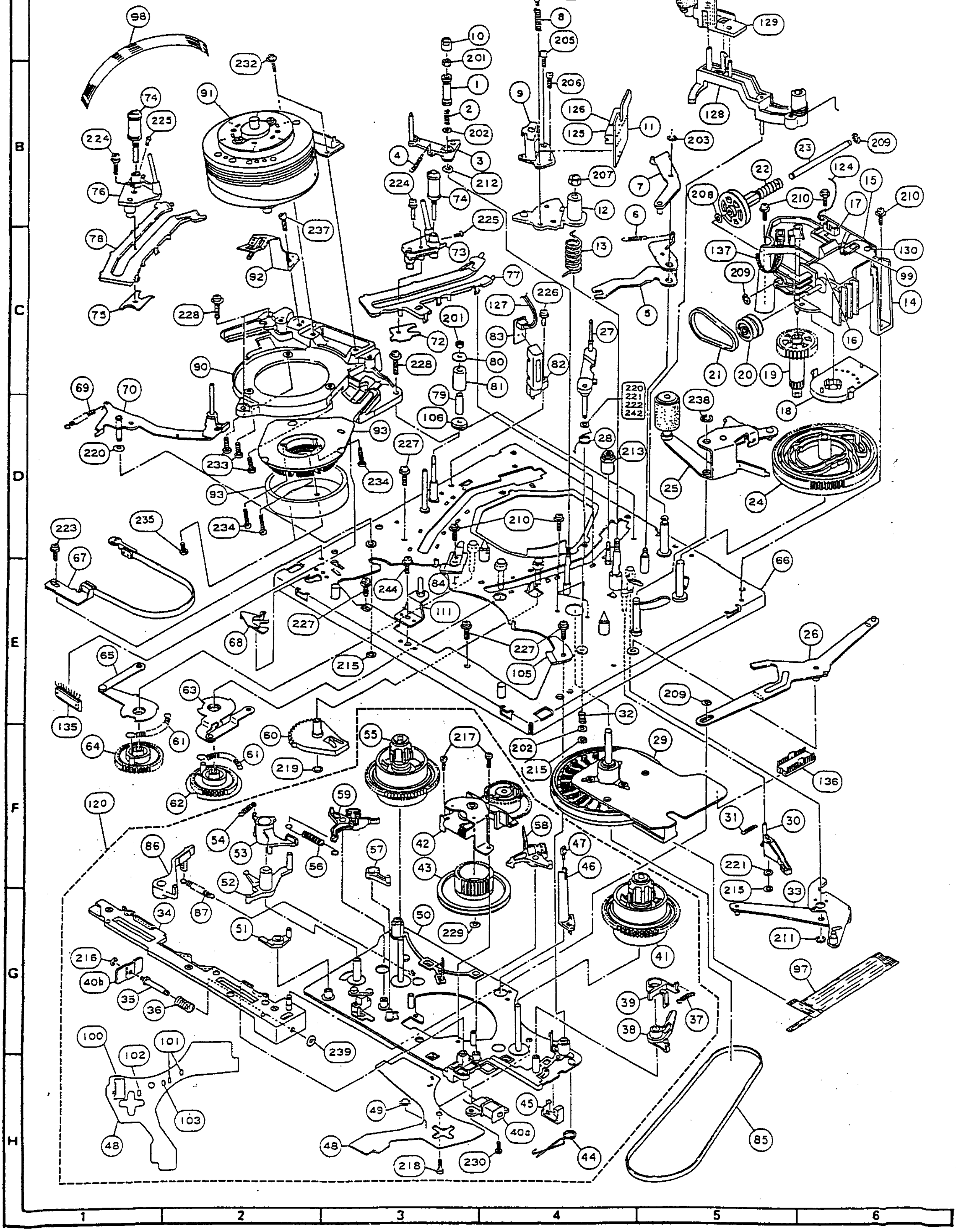
FRONT PANEL PARTS

Ref. No.	Part No.	Description	Code
501	CPNLC1738GE01	Front Panel Ass'y (VC-H91, VC-H91ETS)	BC
501	CPNLC1738GE02	Front Panel Ass'y (VC-H96, VC-H96ETS)	BC
501	CPNLC1738GE04	Front Panel Ass'y (VC-H980)	BC
501	CPNLC1738GE05	Front Panel Ass'y (VC-H980ETS)	BD
501-2	CDORF2058GE01	Door Ass'y (VC-H91, VC-H91ETS)	AM
501-2	CDORF2057GE01	Door Ass'y (VC-H96, VC-H96ETS)	AM
501-2	CDORF2106GE01	Door Ass'y (VC-H980, VC-H980ETS)	AM
501-2-2	TLABH0490GEZZ	Door Label	AB
501-2-3	HBDGB1007GESA	Badge, "SHARP"	AD
501-3	HDECQ0886GESA	Decoration Panel (VC-H91, VC-H91ETS)	AG
501-3	HDECQ0897GESA	Decoration Panel (VC-H96, VC-H96ETS)	AL

Ref. No.	Part No.	Description	Code
501-3	HDECQ0971GESA	Decoration Panel (VC-H980, VC-H980ETS)	AL
501-4	HiNDP1868GESA	Indication Panel (VC-H91, VC-H91ETS)	AC
501-4	HiNDP1873GESA	Indication Panel (VC-H96, VC-H96ETS)	AC
501-4	PSPAZ0348GEZZ	Spacer (VC-H980, VC-H980ETS)	AC
501-5	JBTN-2524GESA	Button, Key Control (VC-H980, VC-H980ETS)	AC
501-6	CDECQ0933GE01	Cassette Flap Ass'y (VC-H91, VC-H91ETS)	AM
501-6-2	HDECQ0903GESA	Rib (VC-H91, VC-H91ETS)	AB
501-6	HDECQ0932GESD	Cassette Flap (VC-H96, VC-H96ETS)	AK
501-6	HDECQ0970GESC	Cassette Flap (VC-H980)	AG
501-6	HDECQ0972GESC	Cassette Flap (VC-H980ETS)	AK
501-7	LANGF9522GEFW	Cassette Angle	AA
501-8	MSPRD0123GEFJ	Cassette Spring	AA
501-9	HDECQ0890GESA	Front Display Window	AK
501-10	HiNDP1893GESA	Indication Panel (VC-H91, VC-H91ETS)	AG
501-10	HiNDP1892GESA	Indication Panel (VC-H96, VC-H96ETS)	AF
501-10	HiNDP1870GESA	Indication Panel (VC-H980, VC-H980ETS)	AF
501-11	HDECQ0891GESA	Decoration Panel (Leg)	AE
501-12	QEARP0354GEFW	Earth Plate (Bottom)	AB
501-13	QEARP0355GEFW	Earth Plate (Indication Plate)	AB
501-14	PCOVU9205GESB	Display Filter	AD
501-15	JBTN-2508GESA	Button, REC	AE
501-16	TLABZ0945GEZZ	Feature Label (VC-H91, VC-H91ETS)	AE
501-16	TLABZ0944GEZZ	Feature Label (VC-H96, VC-H96ETS)	AE
501-16	TLABZ0974GEZZ	Feature Label (VC-H980)	AF
501-16	TLABZ0978GEZZ	Feature Label (VC-H980ETS)	AL
501-17	CBTN-2523GE01	Button Ass'y	AD
501-17-2	GCOVA1734GESA	LED Cover	AB
501-18	LHLDS1010GEZZ	Door Holder	AA
501-19	XJPSD20P06XS0	Cassette Flap Screw	AA

EXPLODED VIEWS
零件分解图

MECHANISM CHASSIS PARTS
机芯底盘零件分解图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40b
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30
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211
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38
100
101
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103
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40a
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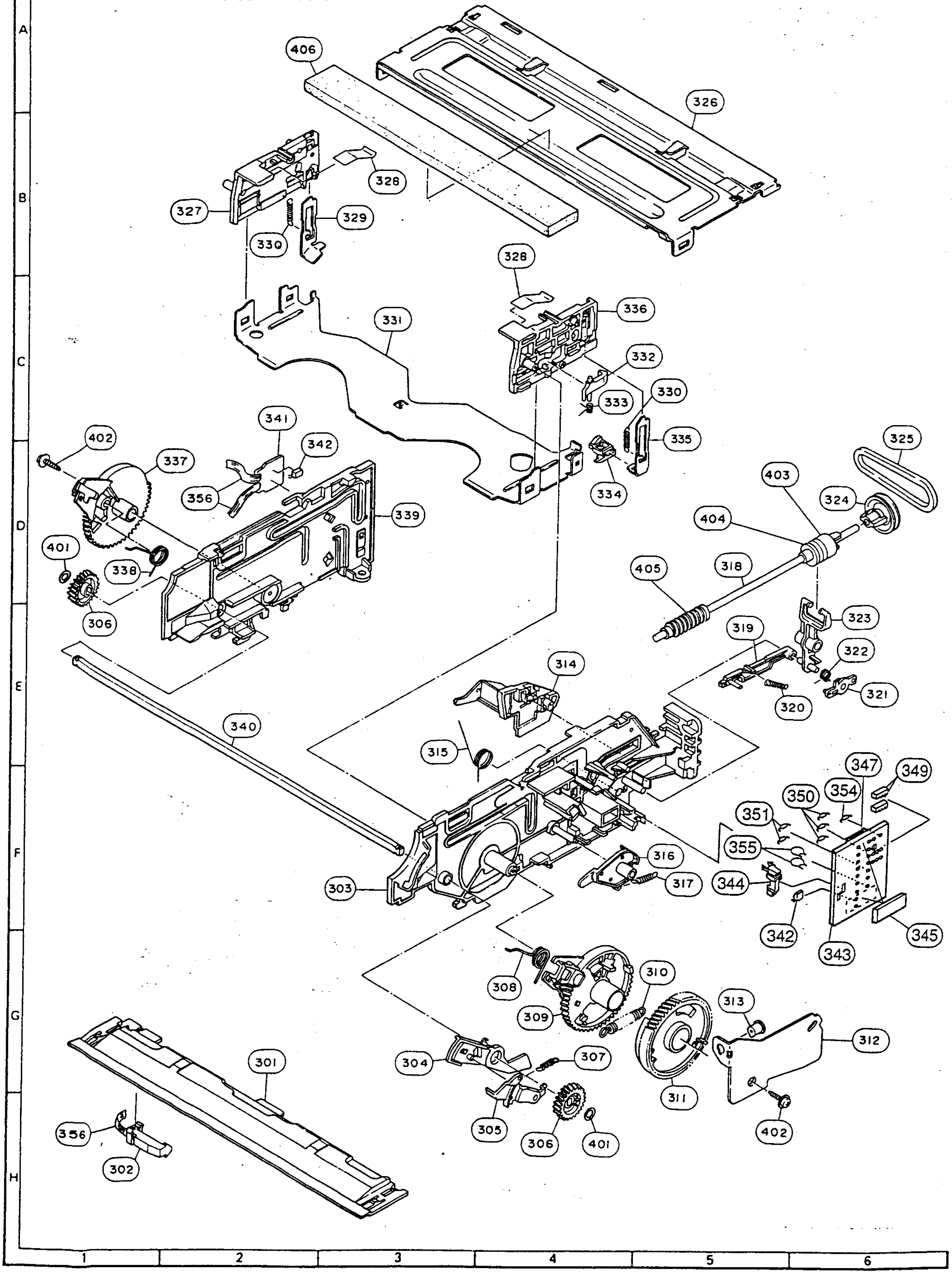
230
218
44
85

CASSETTE HOUSING CONTROL PARTS

盒室机构控制零件分解图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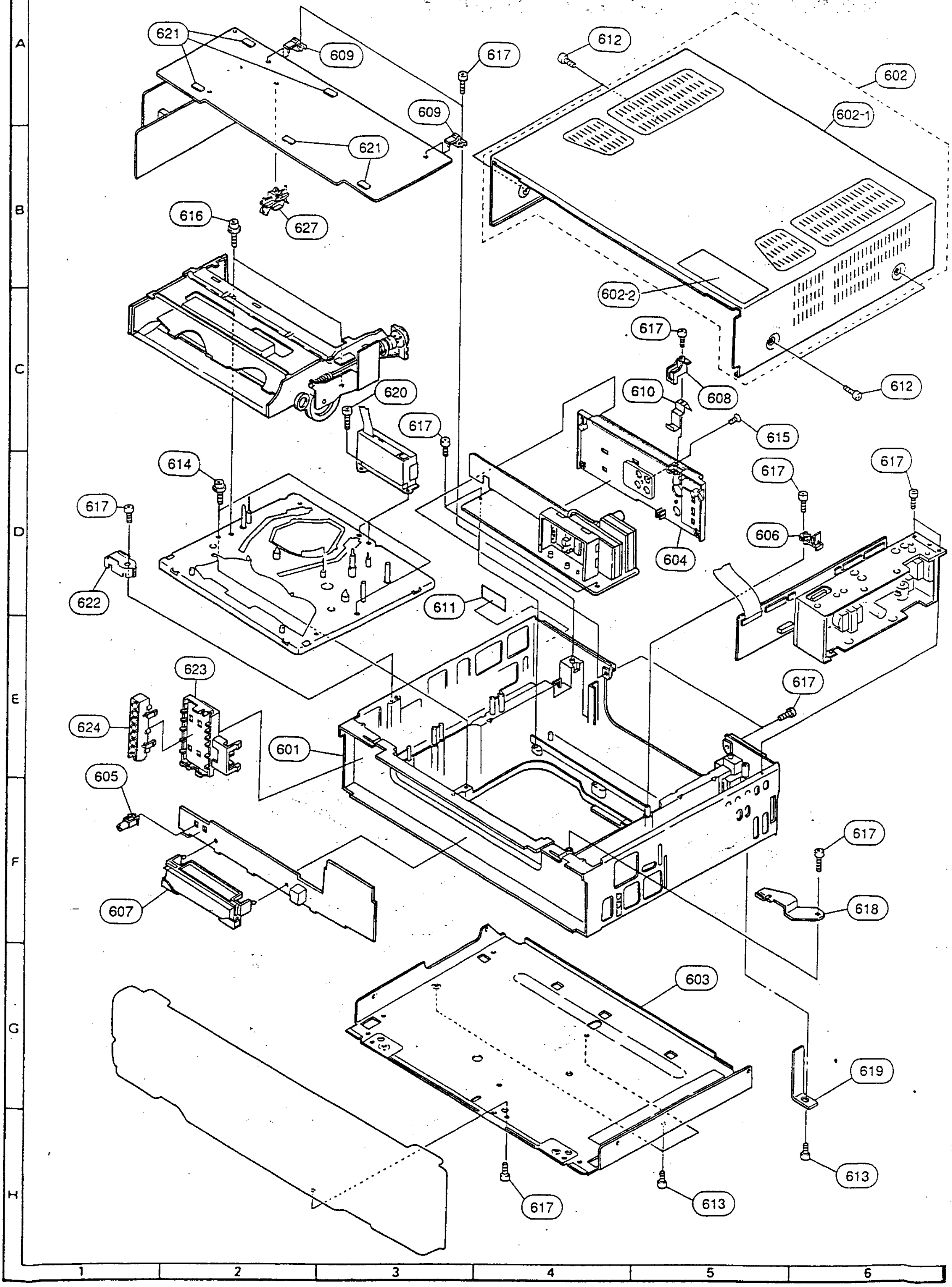
402
302

MECHANICAL PARTS (VC-H91/VC-H91ETS)

机械零件分解图 (VC-H91/VC-H91ETS)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619
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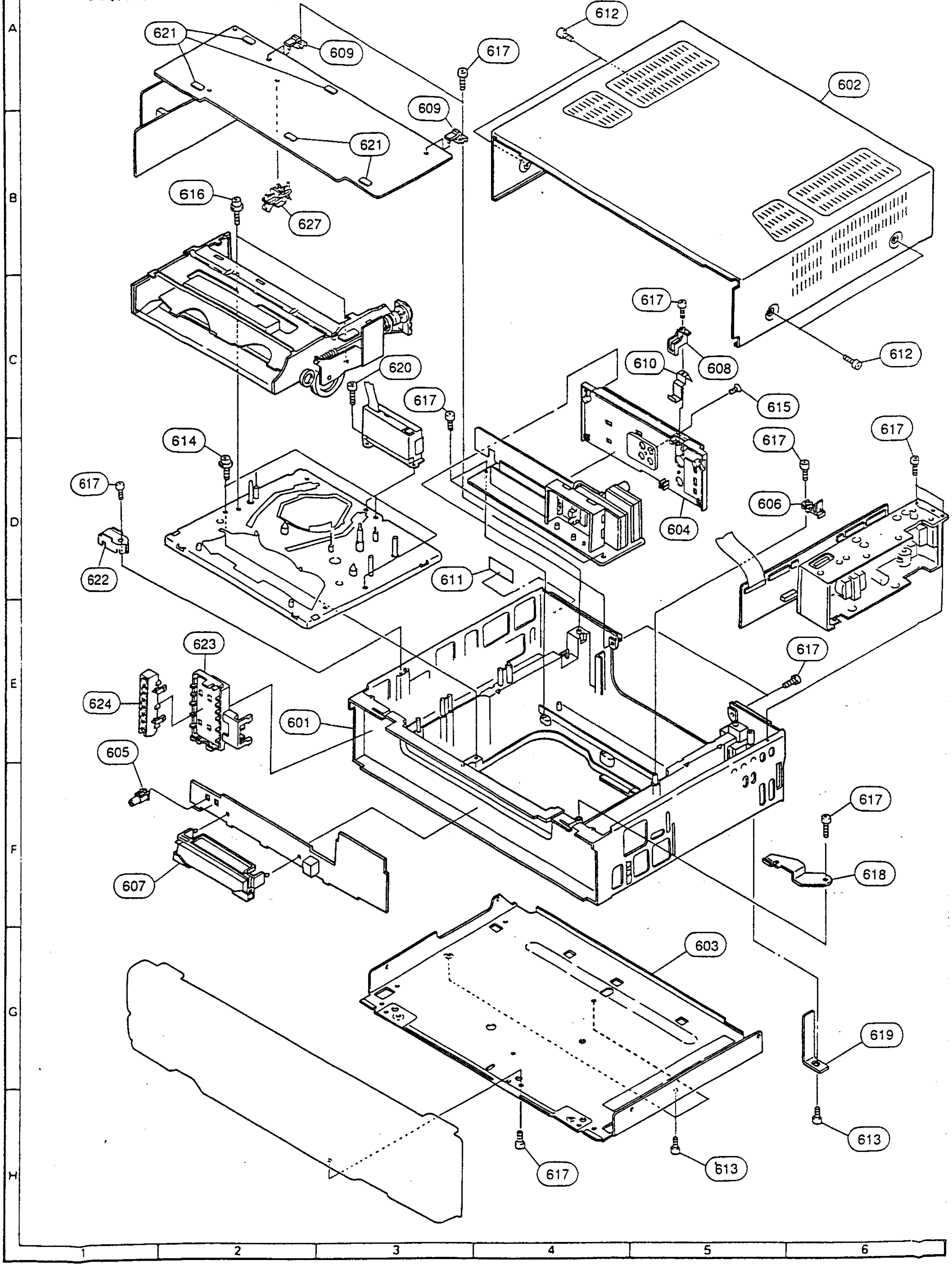
617
613

MECHANICAL PARTS (VC-H96/VC-H96ETS)
机械零件分解图 (VC-H96/VC-H96ETS)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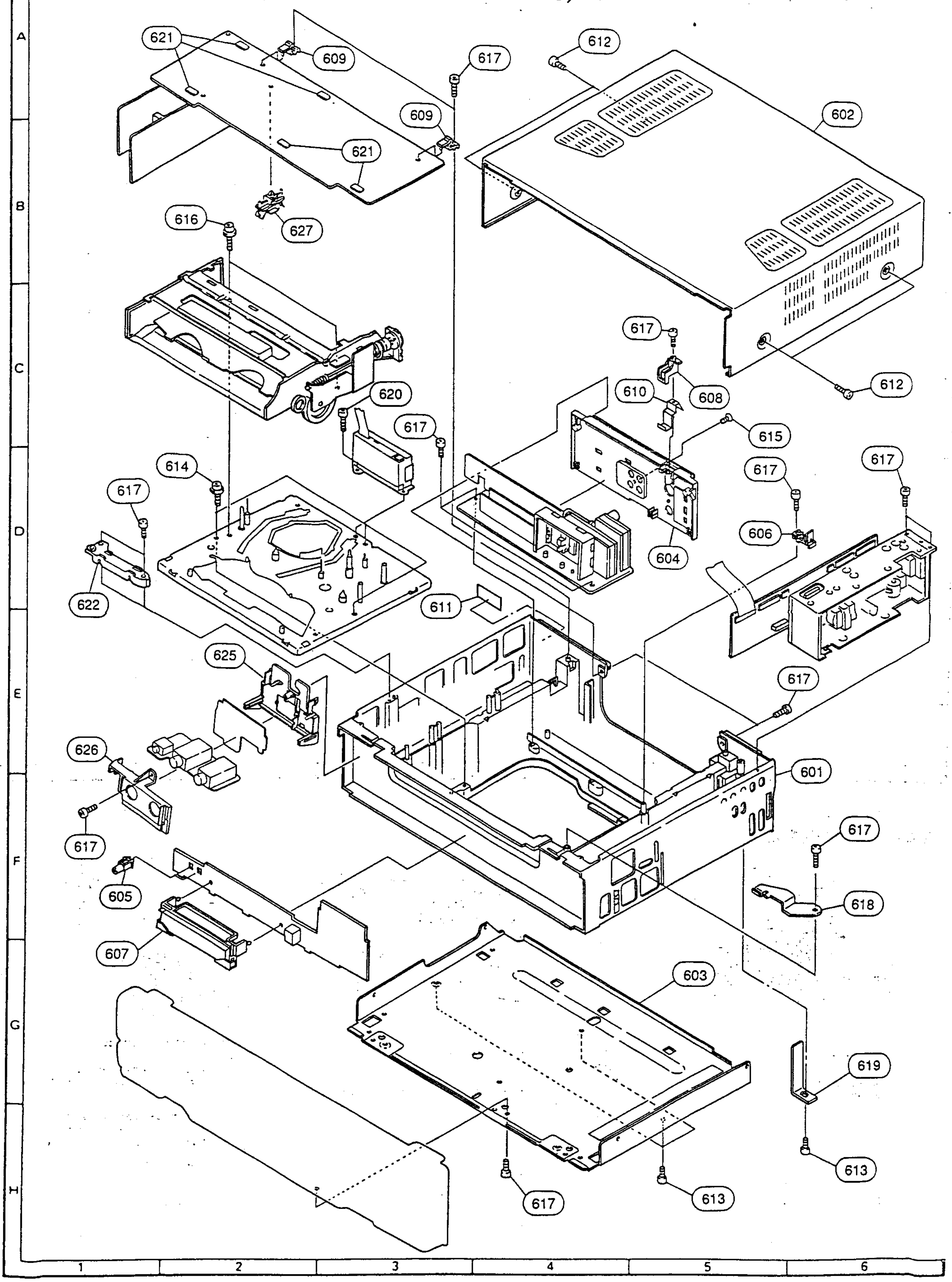
MECHANICAL PARTS (VC-H980/VC-H980ETS)
机械零件分解图 (VC-H980/VC-H980ETS)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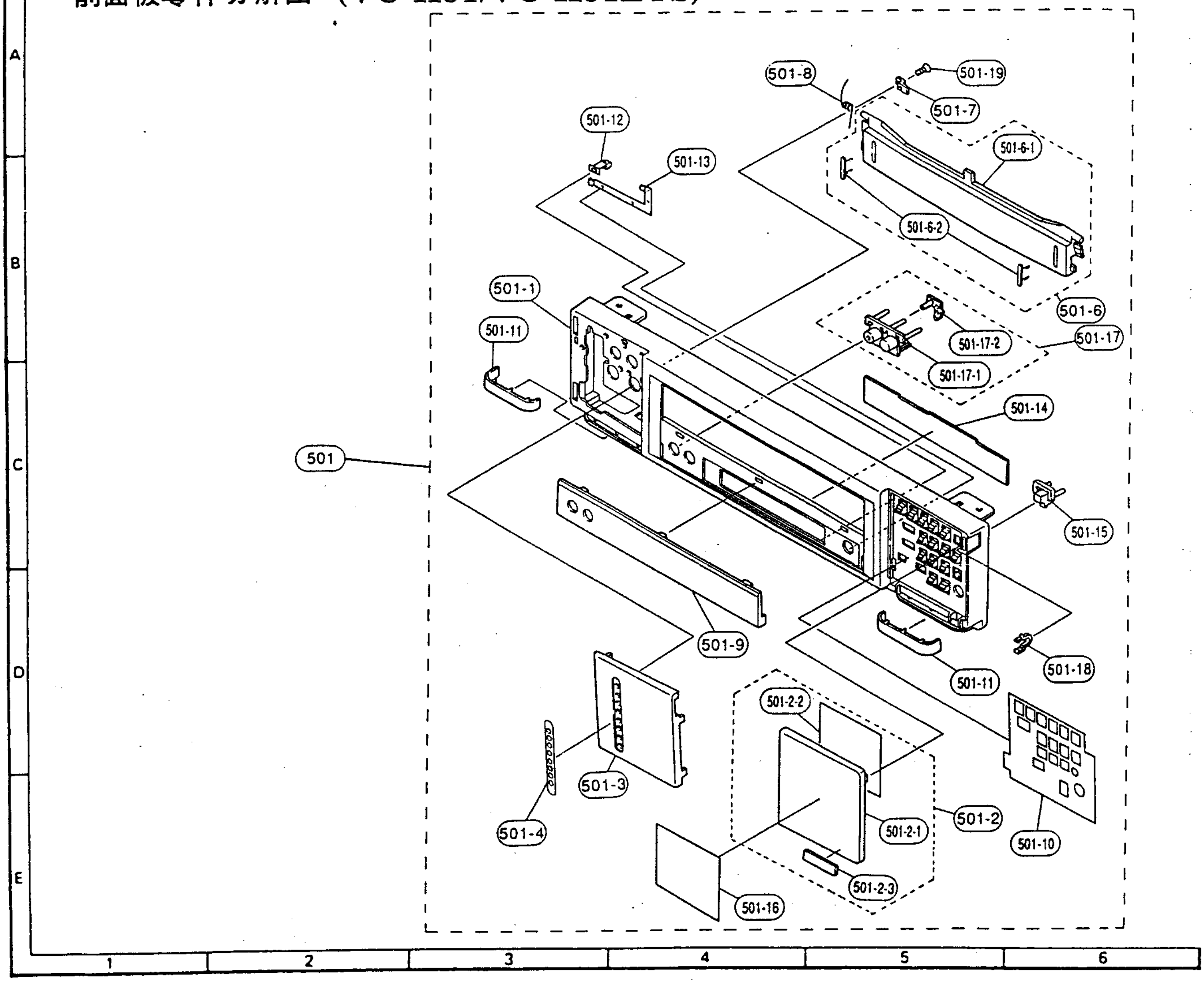
FRONT PANEL PARTS (VC-H91/VC-H91ETS)
前面板零件分解图 (VC-H91/VC-H91ETS)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501-17-1
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501-15
501-9
501-18
501-11
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501-2-1
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501-2-3
501-16
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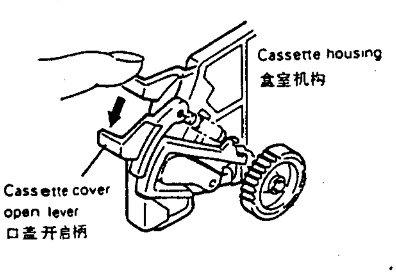
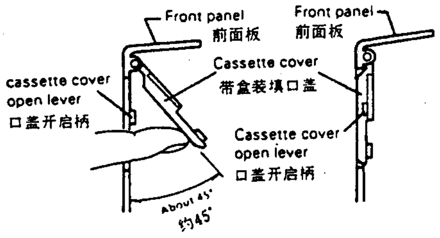
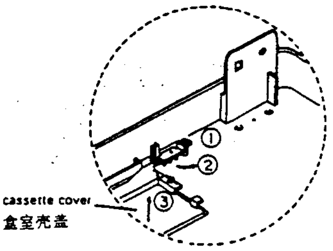
PRECAUTIONS ON FRONT PANEL SET-UP
前面板装配时的注意事项


Cassette housing
盒室机构
Cassette cover
open lever
口盖开启柄


Front panel
前面板
Front panel
前面板
cassette cover
open lever
口盖开启柄
Cassette cover
带盒装填口盖
Cassette cover
open lever
口盖开启柄
About 45°
约45°


①
②
③
cassette cover
盒室壳盖

Before attaching the front panel in position make sure that the cassette cover open lever is in its right place (lowermost). If it is out of position, push it down with a finger.

安置前面板就位之前，必须先检查口盖开启柄是否置于正当位置（最下位置），否则，用手指向下按压口盖开启柄。

keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.

保持将带盒装填口盖开启为约45°的状态；然后确认口盖开启柄位于前面板与带盒装填口盖之间，这样便可将前面板安装在规定位置上。

Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

带盒装填口盖开启度过大时，切勿安装前面板，否则装填录象带于盒室机构内时，会导致其口盖开启动作不当。

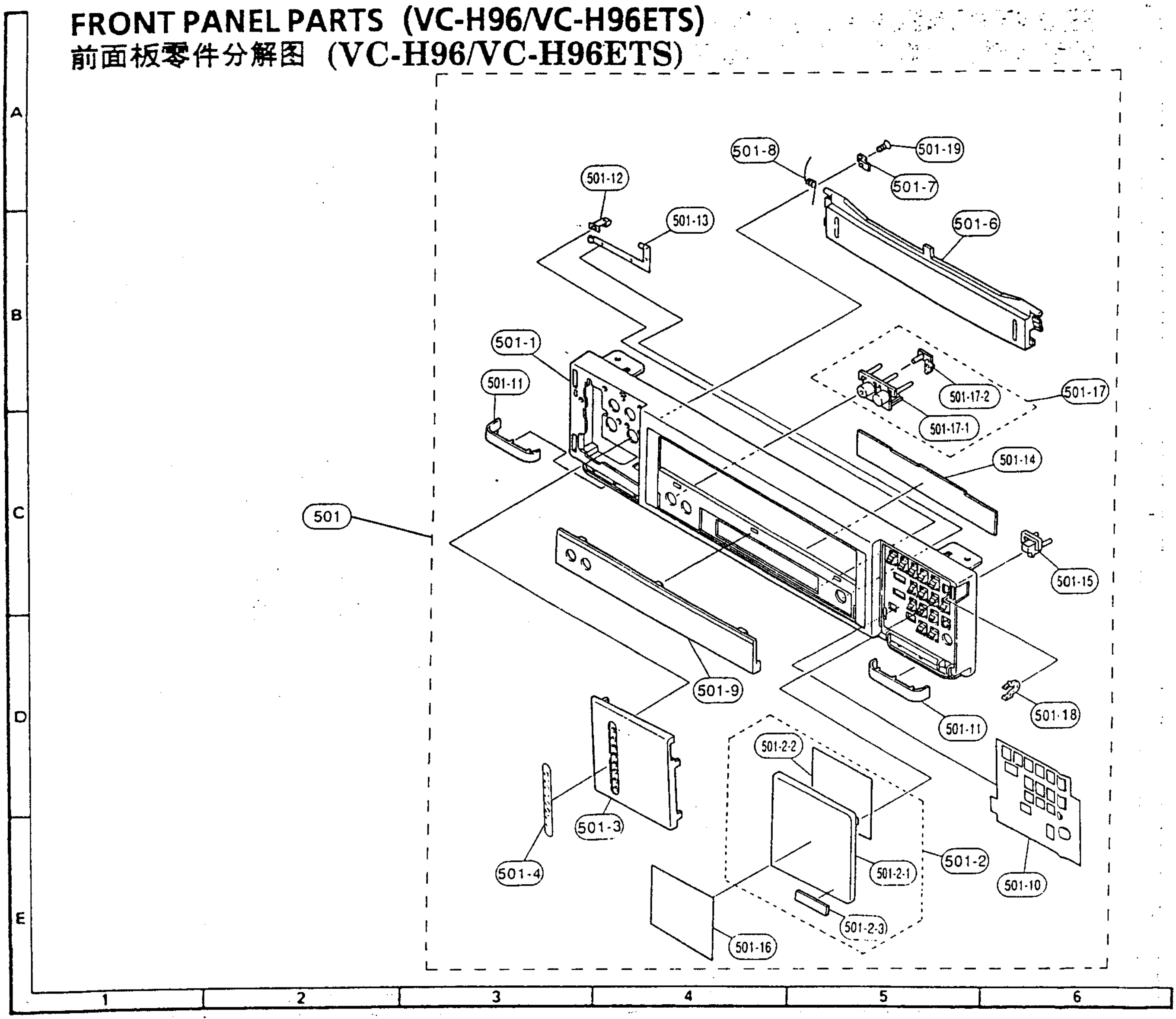
Removing the cassette compartment cover

1. Loosen the screw ① and turn the fixing metal in the direction of the arrow ②.
2. Lift up the cassette compartment cover in the direction of arrow ③ and remove it from the front panel.

盒室壳盖的拆除

1. 松旋螺丝①后，按上图箭头②的方向旋转定位金属。
2. 接着，按箭头③所示方向，向上提起盒室壳盖，这样便可将其从前面板上拆除。

FRONT PANEL PARTS (VC-H96/VC-H96ETS)
前面板零件分解图 (VC-H96/VC-H96ETS)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501-17-2
501-17
501-17-1
501-14
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501-15
501-9
501-18
501-11
501-2-2
501-3
501-2
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501-2-1
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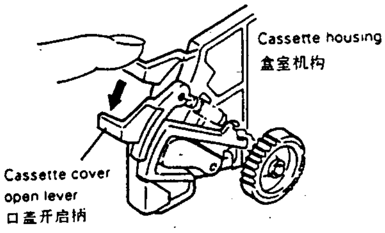
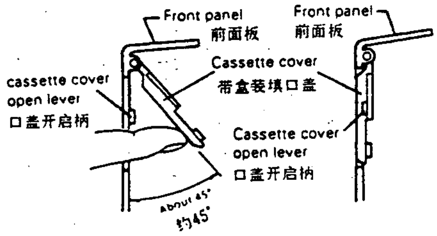
501-2-3
501-16

PRECAUTIONS ON FRONT PANEL SET-UP
前面板装配时的注意事项


Cassette housing
盒室机构
Cassette cover
open lever
口盖开启柄

Before attaching the front panel in position make sure that the cassette cover open lever is in its right place (lowermost) If it is out of position, push it down with a finger

安置前面板就位之前，必须先检查口盖开启柄是否置于正当位置（最下位置），否则，用手指向下按压口盖开启柄。

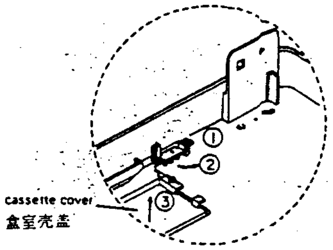

Front panel
前面板
Front panel
前面板
cassette cover
open lever
口盖开启柄
Cassette cover
带盒装填口盖
Cassette cover
open lever
口盖开启柄
About 45°
约45°

keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover Now fix the front panel in place

保持将带盒装填口盖开启为约45°的状态，然后确认口盖开启柄位于前面板与带盒装填口盖之间，这样便可将前面板安装在规定位置上。

Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing

带盒装填口盖开启度过大时，切勿安装前面板，否则装填录象带于盒室机构内时，会导致其口盖开启动作不当。


①
②
③
cassette cover
盒室壳盖

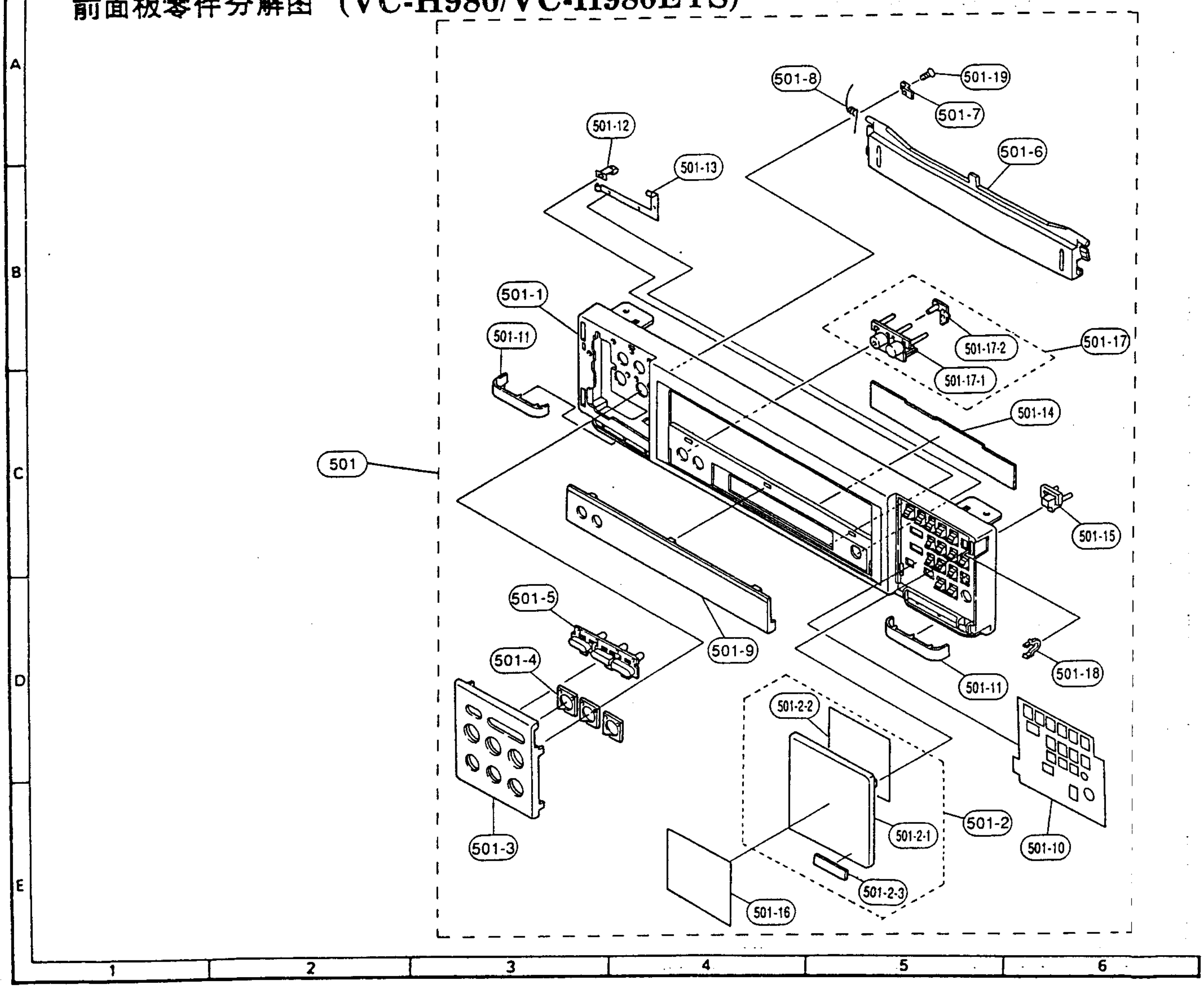
Removing the cassette compartment cover

1. Loosen the screw ① and turn the fixing metal in the direction of the arrow ②.
2. Lift up the cassette compartment cover in the direction of arrow ③ and remove it from the front panel.

盒室壳盖的拆除

1. 松旋螺丝①后，按上图箭头②的方向旋转定位金属。
2. 接着，按箭头③所示方向，向上提起盒室壳盖，这样便可将其从前面板上拆除。

FRONT PANEL PARTS (VC-H980/VC-H980ETS)
前面板零件分解图 (VC-H980/VC-H980ETS)


501-8
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501-12
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501-14
501
501-15
501-5
501-9
501-18
501-4
501-11
501-2-2
501-2-1
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501-10
501-3
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501-16
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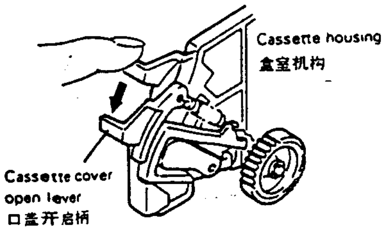
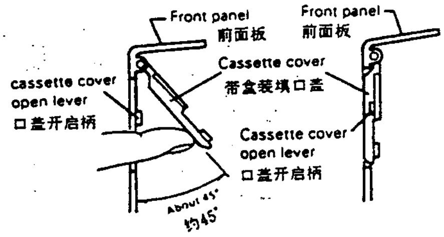
PRECAUTIONS ON FRONT PANEL SET-UP
前面板装配时的注意事项


Cassette housing
盒室机构
Cassette cover open lever
口盖开启柄

Before attaching the front panel in position make sure that the cassette cover open lever is in its right place (lowermost). If it is out of position, push it down with a finger.

安置前面板就位之前，必须先检查口盖开启柄是否置于正当位置（最下位置），否则，用手指向下按压口盖开启柄。

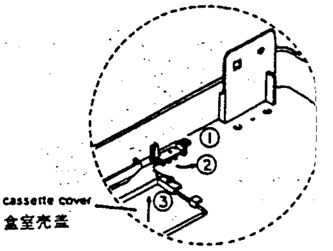

Front panel
前面板
Front panel
前面板
cassette cover open lever
口盖开启柄
Cassette cover
带盒装填口盖
Cassette cover open lever
口盖开启柄
About 45°
约45°

keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.

保持将带盒装填口盖开启为约45°的状态；然后确认口盖开启柄位于前面板与带盒装填口盖之间，这样便可将前面板安装在规定位置上。

Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

带盒装填口盖开启度过大时，切勿安装前面板，否则装填录象带于盒室机构内时，会导致其口盖开启动作不当。


①
②
③
cassette cover
盒室壳盖

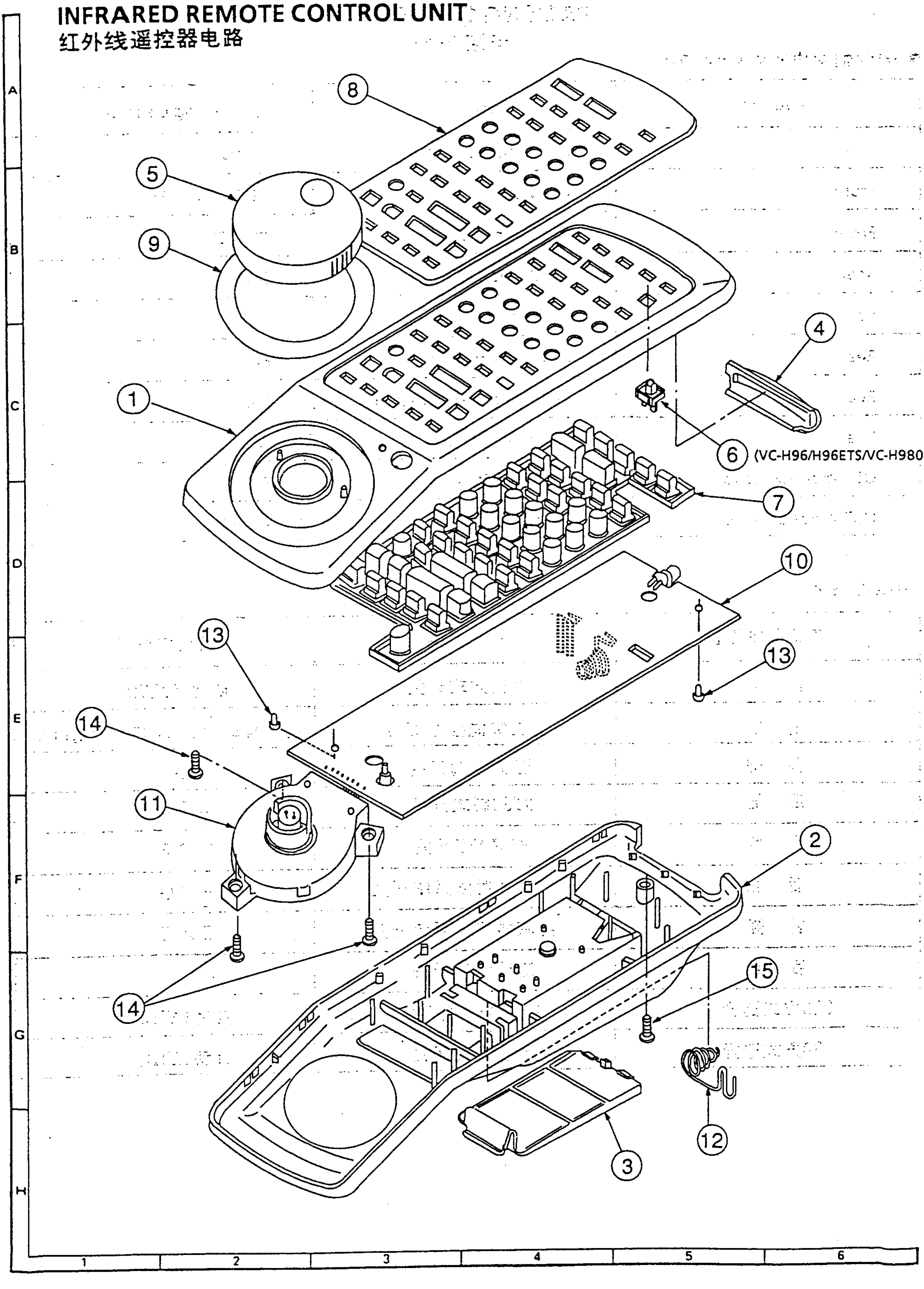
Removing the cassette compartment cover.

1. Loosen the screw ① and turn the fixing metal in the direction of the arrow ②.
2. Lift up the cassette compartment cover in the direction of arrow ③ and remove it from the front panel.

盒室壳盖的拆除

1. 松旋螺丝①后，按上图箭头②的方向旋转定位金属。
2. 接着，按箭头③所示方向，向上提起盒室壳盖，这样便可将其从前面板上拆除。

INFRARED REMOTE CONTROL UNIT
红外线遥控器电路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(VC-H96/H96ETS/VC-H980)
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PACKING OF THE SET
包装方法

■ Setting position of the Knobs

Position	Switch	Setting position
Front	Colour mode switch	AUTO
Front	AI switch	AUTO PICTURE
Front	Picture tone volume	CENTER
Rear	NTSC mode switch	3.58
Rear	Audio ATT. switch	OFF
Rear	IF/RF system switch	B/G
Rear	RF converter system switch	B/G
Rear	Test signal switch	OFF
OSD mode selection	NICAM switch	AUTO
OSD mode selection	Blue back switch	AUTO

●各旋钮设定方法

开关所在位置	开关	开关设定位置
前部	彩色方式开关	自动（AUTO）
前部	人工智能控制开关	图象自动控制（AUTO PICTURE）
前部	图象色调开关	中央
后侧	NTSC制式开关	3.58
后侧	音频ATT开关	ＯＦＦ
后侧	中频／射频系统开关	Ｂ／Ｇ
后侧	射频转换器系统开关	Ｂ／Ｇ
后侧	测试信号开关	ＯＦＦ
OSD方式选择	NICAM制式开关	自动(AUTO)
OSD方式选择	蓝色背景开关	自动(AUTO)

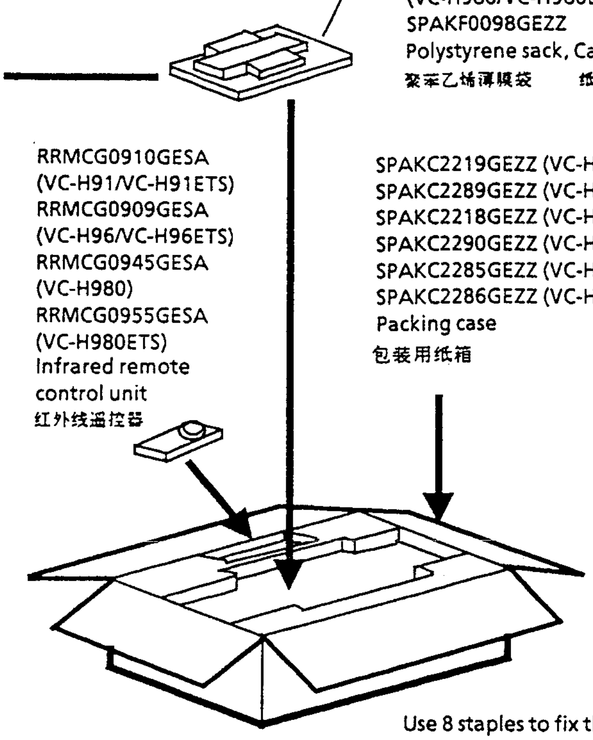
Accessories
附属品

★ TiNS-2031GEZZ	Operation manual 使用说明书 (VC-H91/VC-H91ETS)
★ TiNS-2004GEZZ	Operation manual 使用说明书 (VC-H96/VC-H96ETS)
★ TiNS-2056GEZZ	Operation manual 使用说明书 (VC-H980)
★ TiNS-2065GEZZ	Operation manual 使用说明书 (VC-H980ETS)
★ QCNW-5650GEZZ	Antenna cord 天线延长引线
QACCZ3011GEZZ	AC cord 交流电源引线 (VC-H91/VC-H96/VC-H980)
QACCV2033GEZZ	AC cord 交流电源引线 (VC-H91ETS/VC-H96ETS/VC-H980ETS)
★ QPLGA0011CEZZ	AC plug adapter 交流插塞式接合器 (VC-H91/VC-H96/VC-H980)
★	Battery 电池

★ SPAKF0099GEZZ
(Except VC-H980/VC-H980ETS)
(VC-H980/VC-H980ETS除外)
SPAKF0100GEZZ
(VC-H980/VC-H980ETS)
SPAKF0098GEZZ
Polystyrene sack, Case
聚苯乙烯薄膜袋 纸箱

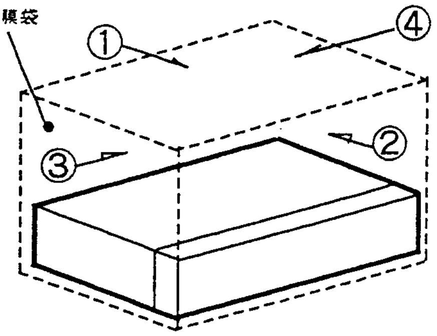
RRMCG0910GESA
(VC-H91/VC-H91ETS)
RRMCG0909GESA
(VC-H96/VC-H96ETS)
RRMCG0945GESA
(VC-H980)
RRMCG0955GESA
(VC-H980ETS)
Infrared remote
control unit
红外线遥控器

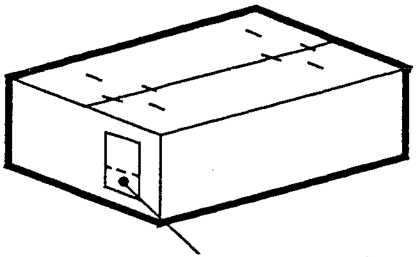
SPAKC2219GEZZ (VC-H91)
SPAKC2289GEZZ (VC-H91ETS)
SPAKC2218GEZZ (VC-H96)
SPAKC2290GEZZ (VC-H96ETS)
SPAKC2285GEZZ (VC-H980)
SPAKC2286GEZZ (VC-H980ETS)
Packing case
包装用纸箱



Use 8 staples to fix the
bottom of packing case
用8支U形钉封合
包装箱底部

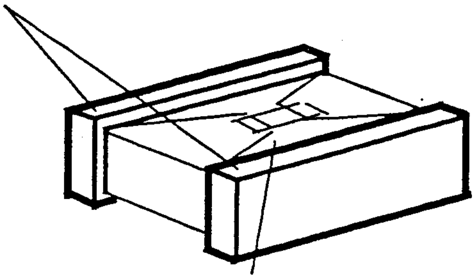
★ SPAKP0045GEZZ
Polystyrene sack
聚苯乙烯薄膜袋





TLABK2459GEZZ (VC-H91)
TLABK2503GEZZ (VC-H91ETS)
TLABK2458GEZZ (VC-H96)
TLABK2502GEZZ (VC-H96ETS)
TLABK2526GEZZ (VC-H980)
TLABK2527GEZZ (VC-H980ETS)
No. card
出厂编号标签

★ SPAKX0751GEZZ (Except VC-H980/VC-H980ETS)
(VC-H980/VC-H980ETS除外)
★ SPAKX0752GEZZ (VC-H980/VC-H980ETS)
Buffer material
防震泡沫塑料衬垫



Fix with craft tape
粘胶标记带

MARK ★ Not Replacement Item

★记号者为非更换品目

91/H91ETS
96/H96ETS
980/H980ETS

SHARP

持出禁

PUBLICATION SECTION
USE ONLY

電子機器事業本部
商品信頼性管理センター

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在日本印刷